ARCHIVES OF OPHTHALMOLOGY.

THE VALUE OF THE SERO-DIAGNOSIS OF SYPHILIS IN OPHTHALMOLOGY. A PRELIMINARY REPORT.[1]

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OF the numerous laboratory methods which have come into use as aids to the clinician, there are perhaps few destined to be of greater value in both diagnosis and treatment than the one based on the complement-fixation test of Wasserman. The frequency of syphilis as a causative factor in diseases of the eye, as well as the difficulties which are often encountered in determining this etiological element in individual cases, led us to undertake a series of investigations with the hope of ascertaining of what value the application of the serum test might be in the practice of ophthalmology.

While numerous publications have recently appeared on the sero-diagnosis of syphilis in relation to general medicine and to some of the specialties, yet a search of the literature showed only three such studies on the relationship of the Wasserman reaction to eye diseases. The works referred to are those of the German writers, A. Leber, Curt Cohen, and Gerhard Schumacher, and they will frequently be referred to in the course of this paper.

About nine months ago, with the kind co-operation of Doctors Arnold Knapp and Hideyo Noguchi, we started our investigations in all the suitable eye cases which were available

[1] Read before the Section in Ophthalmology, N. Y. Academy of Medicine, Dec. 20, 1909.

for our purposes, many of the patients being derived from the Clinic of Dr. Knapp at the New York Ophthalmic and Aural Institute. The method and technique which have been employed are those of Dr. Noguchi, he having either personally examined the sera from our cases or supervised their examination at the Rockefeller Institute for Medical Research. The criteria used in selecting our cases were either (1) definite clinical evidence or history of syphilis; (2) suspicious syphilitic etiology; or (3) obscure or unascertainable etiology.

In all there were 130 cases which, as shown in the appended table, include most of the organic eye diseases. Of this number, 60 (or 45%) gave a positive and 72 (or 55%) a negative Noguchi reaction. In 29 of the cases, which gave either definite clinical evidence or a reliable history of syphilis, 14 gave a positive while 15 gave a negative reaction. Of 32 cases in which there had been recent antisyphilitic treatment, 14 gave a positive and 18 a negative reaction. In the combined categories of doubtful and obscure etiology, there were 101 cases, of which 46 (or 45%) gave a positive and 55 (or 55%) a negative reaction.

When we consider how heterogeneous our cases have been in pathology, symptomatology, and mode of treatment, obviously we are not warranted in drawing conclusions from these general findings. Bearing this qualification in mind, let us compare our own results with those obtained by two of the German observers mentioned. Curt Cohen, employing the Wasserman reaction, found 36% of his 64 cases positive (compare this result with our 45%). Schumacher, who employed the Bauer modification of the Wasserman reaction, reports on 215 cases of which 34% were positive (compare again with our 45%).

Of more interest and value than the above results and comparisons will be the separate findings in the various diseases studied, which will now be taken up seriatim.

INTERSTITIAL KERATITIS.

Of the 38 cases of interstitial keratitis studied, 24 (or 63%) gave a positive reaction, this percentage corresponding

closely with Curt Cohen's 6 positive reactions in his 9 cases. In Leber's 31 cases, 84% were positive.

The following notes regarding some of our own cases may be of interest. In three patients, two, six, and nine years of age respectively, the reaction was positive in the three mothers as well as in the children.

In the case of a female seventeen years of age with bilateral interstitial keratitis, the father had died of tabes; the reaction was at first positive but became negative after five months of anti-syphilitic treatment.

In one very severe case in which some improvement in the corneal condition had followed intermittent mixed treatment for six months, the reaction was positive. In another patient seventeen years of age in which the corneal opacities probably represented a former syphilitic manifestation and to whom anti-syphilitic treatment had been given since childhood, the reaction was negative. In a male seventeen years of age from whom the right eye had been enucleated nine years previously and to whom anti-syphilitic treatment had been given for three weeks just previous to examination, the reaction was negative; this patient now passed out of observation and when he returned in two months a faintly positive reaction was obtained.

A female twenty-four years of age showed a squamous syphilide of the palm and unilateral interstitial keratitis; under injection treatment with the salicylate of mercury the keratitis slowly improved and four serum examinations made at intervals of two weeks showed the first one faintly positive and the other three negative. A female eight years of age showed unilateral interstitial keratitis, the symptoms being of four days' duration; the serum reaction was positive; since some of the features in this case were suggestive of tuberculosis, an injection of Koch's old tuberculin (diagnostic) was given and followed by an unmistakable reaction.

The findings in the last-mentioned case as well as in three cases of irido-cyclitis and one case of scleritis (these four cases not being included in this report but all having given a negative Noguchi reaction but positive tuberculin reaction),—these results suggest the question of the association in the same patient of tuberculosis and syphilis, which has not as

yet been studied with the scientific exactness demanded by modern investigation. The recent acquisition of a diagnostic aid in each of these diseases might enable us to determine the frequency of the co-existence of these widespread diseases and their relationship in the same patient. Unfortunately the indications for carrying out simultaneously the two reactions have thus far been presented in but few cases.

IRITIS.

Of the 16 cases studied (either acute attacks of iritis or acute exacerbations), 50% gave a positive reaction. This is a higher percentage than that found by Leber, Curt Cohen, and Schumacher, about 30% of whose cases were positive. There follows a résumé of an illustrative case.

A female fifty-four years of age exhibited a papular syphilide; for one week there had been severe pain in the right eye, examination of which showed a typical iritis; reaction positive; four weeks later iritis appeared in the other eye.

OPTIC NEURITIS AND NEURO-RETINITIS.

Of the 16 cases showing varying degrees of neuritis, 9 (or 56%) were positive. These results are strikingly different from those of either Curt Cohen or Schumacher; the former found only 1 positive case in 9, and the latter only 1 out of 14. There follow brief histories of some of the more interesting of our cases.

1. A male fifty years of age, who was referred to me by Dr. H. F. L. Ziegel, had had a chancre twenty-four years ago. He had complained for two months of supraorbital pain, worse at night, and diplopia. Examination showed a mild grade of optic neuritis and paresis of right superior rectus, also partial ptosis of right eyelid. Reaction positive. After ten injections of the salicylate of mercury the reaction was still positive, though the symptoms had entirely disappeared. After an interval of a month during which iodides were given, followed by twelve more injections at weekly intervals, the reaction was negative.

2. A dentist forty-five years of age, four years ago developed a primary lesion on his finger in the performance of his professional duty. He complained of tearing,

dimness of vision, and diplopia. Examination showed unilateral optic neuritis, paresis of right internal rectus, and stenosis of the right lachrymal duct. Reaction positive. After seventeen bichloride injections there were amelioration in both symptoms and signs, and a negative reaction.

3. A male fifty-four years of age had had for several years otorrhœa with deafness in one ear. No history of syphilis. Suddenly there developed severe headache, vomiting, and prostration. Examination showed unilateral choked disk and spontaneous nystagmus. Brain abscess was suspected and operation contemplated. Reaction positive. Practical cure followed mercurial treatment.

4. A female forty-five years of age was admitted to Lebanon Hospital with symptoms pointing to brain tumor. No history of syphilis. Examination showed motor amnesic aphasia (Dr. Lezynsky), bilateral choked disks, paralysis of right extremities, and myocarditis. Reaction negative. Operation by Dr. Henry Roth revealed a brain softening with exudate on the surface.

OPTIC ATROPHY.

In the 10 cases studied, 4 showed a primary and 6 a post-neuritic atrophy; 2 gave a positive and 8 a negative reaction. In Curt Cohen's 6 cases, 4 were positive. In Schumacher's 19 cases, 6 were positive.

CHORIO-RETINITIS

Of the 6 cases studied, 3 were positive and 3 negative. In Schumacher's 10 cases, 2 were positive. Illustrative case:

A male forty-one years of age who denied syphilis had complained for over a year of visual disturbance. There was bilateral chorio-retinitis. Though vision improved greatly under the injection treatment, which had been given for one year, the reaction was positive.

DETACHMENT OF THE RETINA.

In one of the two cases studied, which was a primary detachment of unknown etiology, the reaction was negative. The other patient, nine years of age, exhibited a unilateral detachment which was secondary to an exudative chorioiditis; previous to the child's birth the mother had had two miscarriages; significant is the fact that both parents as well as the patient gave a positive Noguchi reaction.

OPHTHALMOPLEGIA INTERNA OF ONE EYE.

Of the two cases studied, one gave a positive and the other a negative reaction.

COMPLETE OCULO-MOTOR PARALYSIS OF ONE EYE.

The two cases studied, both gave a positive reaction.

RETINITIS PIGMENTOSA.

Of the 8 cases studied, 5 gave a positive and 3 a negative reaction. In view of the uncertain etiology of this disease, the comparatively large proportion of positive results is interesting. Illustrative case:

> A male thirty-four years of age had complained since early childhood of night blindness. Syphilis denied. No history of consanguinity. The ophthalmoscopic findings in both eyes were characteristic. Reaction positive.

ACROMEGALY.

In two cases with characteristic signs, one gave a positive reaction. This patient had bilateral hemianopsia.

CHANCRE OF UPPER EYELID.

A male forty-four years of age exhibited a punched-out painless ulcer with indurated base situated on the cutaneous surface of the right upper eyelid near its margin. The lesion had been present for two weeks. Reaction positive. The patient failed to reappear for further observation and treatment.

What, now, are the inferences to be drawn from the observations embodied in this report? Some of them are as follows:

In brain cases with choked disks in which the indications for operation are doubtful and lues is suspected, the presence or absence of this reaction furnishes a valuable confirmatory aid which is speedier and probably more satisfactory than the therapeutic test.

The frequent occurrence of a positive reaction in both

mother and child when the latter is suffering from interstitial keratitis goes to confirm our preconception that this disease is often due to hereditary lues and in these cases indicates the proper therapeutic procedure.

The large proportion of positive reactions in our cases of retinitis pigmentosa may throw some light on the heretofore obscure etiology of this disease.

Considering the varying occurrence, origin, and pathological nature of the cases studied, as well as their comparatively small number, we are hardly justified as yet in drawing final conclusions as to the diagnostic and therapeutic value of the Noguchi reaction in ophthalmology. But it is our intention to continue the present investigations until the number and character of the cases warrant more definite deductions. We cannot however escape the general conclusion that in the serum test we already possess a valuable presumptive aid in the diagnosis and treatment of diseases of the eye.

	Total Number of Cases.	Undoubtedly Syphilitic		Doubtfully Syphilitic		Under Recent Treatment	
		+	−	+	−	+	−
1. Interstitial Keratitis	38	7	2	17	12	5	7
2. Iritis	16	3	2	5	6	1	3
3. Irido-cyclitis	3	0	1	0	2	0	1
4. Optic Neuritis	10	2	0	4	4	2	0
5. Optic Atrophy	10	0	1	2	7	1	0
6. Neuro-retinitis	6	0	2	3	1	0	1
7. Retrobulbar Neuritis	1	0	0	0	1	0	0
8. Retinitis Pigmentosa	8	0	1	5	2	0	1
9. Retinitis	1	0	0	0	1	0	1
10. Detachment of Retina	2	0	1	1	0	0	0
11. Embolism of Central Artery	2	0	1	0	1	0	1
12. Chorioiditis	8	0	0	2	6	0	0
13. Chorio-retinitis	6	0	0	3	3	3	1
14. Scleritis	2	0	0	1	1	0	1
15. Ophthalmoplegia Interna	2	1	1	0	0	0	0
16. Oculo-motor Paralysis	2	0	2	0	0	2	0
17. Ptosis	2	0	0	0	2	0	0
18. Paralysis External Rectus	2	0	0	0	2	0	0
19. Diplopia	2	0	1	1	0	0	0

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	Total Number of Cases.	Undoubtedly Syphilitic +	Undoubtedly Syphilitic —	Doubtfully Syphilitic +	Doubtfully Syphilitic —	Under Recent Treatment +	Under Recent Treatment —
20. Corneal Ulcer	1	1	0	0	0	0	0
21. Chancre of Upper Lid	1	0	0	1	0	0	0
22. Sympathetic Ophthalmia	1	0	0	0	1	0	1
23. Acromegaly	2	0	0	1	1	0	0
24. Amaurotic Family Idiocy	1	0	0	0	1	0	0
25. Graves' Disease	1	0	0	0	1	0	0
	130	14	15	46	55	14	18

\+ = Positive Serum Reaction.
− = Negative Serum Reaction.

REFERENCES.

CURT COHEN. "Die Serodiagnose der Syphilis in der Ophthalmologie." *Berliner klinische Wochenschrift*, May 4, 1908.

GERHARD SCHUMACHER. "Die Serodiagnose der Syphilis in der Augenheilkunde nebst Bemerkungen über die Beziehungen der Tuberculose zur Syphilis bei Augenleiden." *Deutsche medizinische Wochenschrift*, Nov. 4, 1909.

A. LEBER—Discussion at Berliner ophthalmologische Gesellschaft, June, 1907.

CONCERNING QUININ-BLINDNESS, WITH THE REPORT OF A CASE.

By Dr. G. E. DE SCHWEINITZ, Philadelphia.

(*With two charts in the text.*)

WHILE the main features of the case of quinin-blindness, the record of which follows, do not in any essential particular differ from many others which have been published, the visual field phenomena are somewhat at variance from those which are usually found, and therefore the report seems worthy of record:

History.—J. B., white, single, aged forty, was admitted to the Eye Ward of the Philadelphia General Hospital, November 9, 1909, because of defective peripheral vision, so marked in a dull light that he had great difficulty in walking.

The patient's father died of a tumor of the bladder; his mother, as the result of some uterine disease necessitating an operation. Two sisters and one brother are living and in good health. No history of cardiac, renal, or pulmonary disease was obtained. The patient was born in America, and attended school until he was fifteen; afterward he learned the trade of a machinist, and was accustomed to do work which required accurate eyesight. He has used tea and coffee moderately, alcohol to excess, and was a chewer of tobacco, but only a very moderate smoker.

The patient has had the usual diseases of childhood; in adult life he had erysipelas, gonorrhœa, and once, several years ago, a lesion which is described as a chancroid, but which was cauterized and for which he "took medicine" for ten weeks. It is therefore probable that the infection was syphilis.

In March, 1909, he swallowed a quantity of quinin, how much he does not know, except that the dose was a very large one, because he had heard that that drug "was good for a chill" from which he believed he was suffering. Al-

most immediately he felt nauseated; vomiting and diarrhœa followed. He went to the Hahnemann Hospital for relief, and half an hour after taking the drug he became entirely blind, and remained in this condition for fourteen hours.[1] During this period his mind was clear and there was no tinnitus aurium. Gradually his direct vision returned, but the peripheral vision remained defective, so that he stumbled readily, ran into objects while walking, and could not see any one or anything unless he turned his head downward or to the side.

The patient is a fairly well developed man, but anæmic in appearance. Physical examination failed to reveal any lesions in the chest, abdomen, or the extremities. No abnormalities of the nervous system were detected.

The systolic pressure was 120, the diastolic 95. The blood examination yielded the following result: Red b. c., 5,800,000; white b. c., 6400. No bacteria or parasites. Von Pirquet's and Rosenberger's tests for tuberculosis were negative.

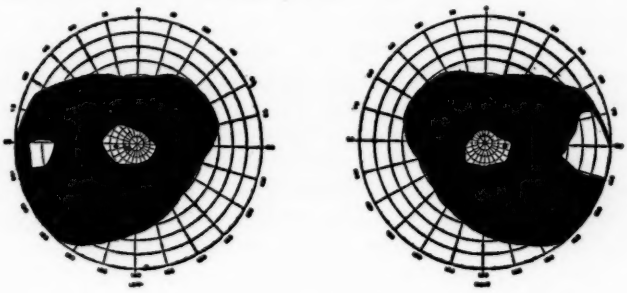
The urine was alkalin, specific gravity 1.017; no albumin or sugar. The sediment contained leucocytes, much squamous epithelium, granular débris, and triple phosphate crystals.

Examination of the Eyes.—Vision of each eye $\frac{6}{6}$; light-sense tested with De Wecker's photometric types, $L = \frac{6}{10}$.

Each disk is of a greenish-gray atrophic pallor and contains a small central cup, not shelving or undermined, and exposing the lamina. Both sets of vessels are diminished in calibre, the arteries markedly so. The veins of the left eye are larger than those of the right. Near the disk the vessels exhibit a moderate white streaking of their coats, but there is nowhere a conversion of any vessel into a white cord, nor any appearance suggesting the presence of a thrombus. Except for a slightly marked area of buff-colored erosions in the right macula there are no lesions in either fundus other than those described. The pupil reactions are normal; there are no anomalies of the exterior ocular muscles. The patient's accommodation is normal for his age; the refraction is a low hyperopia. The visual fields are represented in the accompanying diagrams. In general terms, their contraction is concentric, and in the elliptically contracted field the longest axis is in the hori-

[1] The records of the hospital, kindly examined for me by Dr. Speakman, state that the man was admitted with symptoms of quinin-intoxication, and that he was treated accordingly. He was not examined at that time ophthalmoscopically, as Dr. Speakman did not have an opportunity of investigating the patient or his eyes.

zontal direction. In the periphery of each temporal field are areas, the larger one in the right field, within which the perception of white and blue is preserved. Within the narrow limits of the central field, color vision is perfect and the color lines in regular order.



Remarks.—The symptoms of this case of quinin-amaurosis are for the most part those which have been recorded in many similar instances: Blindness of sudden development and absolute in character during its existence; gradual restoration of central vision; slow renewal of central color-sense, with ultimate return; permanent reduction of light-sense and contraction of the visual field; extreme pallor, also permanent, of the optic disks and marked contraction of the retinal vessels.

The shape of the visual fields follows a rule, although not an invariable one, first pointed out by H. Knapp, that in the elliptically contracted field the longest axis is in the horizontal direction. The areas of preserved visual field in the form of islands in which the perception of white is retained is an unusual phenomenon. I am unacquainted with similar charts of the visual field in quinin-blindness, except those which illustrate the case history of a patient with quinin-amaurosis reported by Edgar A. Browne.[1] In this instance, however, "the small space of perception of white in the outer periphery" was present only in the left field, and consisted of a triangular patch at the extreme end of, and just below, the horizontal meridian on the temporal side.

[1] *Trans.*, Ophth. Soc., U. K., vol. vii., 1887, p. 193. Doubtless there may be others. I have not attempted to search through the entire literature.

Such areas in which the perception of white light is retained evidently indicate that the function of the supplying nervous elements of these regions was not destroyed by the toxic action of the drug, but why they should occupy, apparently by preference, the periphery of the temporal fields is not evident.

Altland,[1] who has confirmed, amongst other writers, the observations of Ward Holden, Druault, and Birch-Hirschfeld that quinin-amaurosis is due to a ganglion-cell degeneration, explains so-called temporary amblyopia, which may arise under the influence of this drug, by the fact that if, the poisoning is not severe, the cells show only a hypercolorization and slight chromatolysis, and that they are not irreparably damaged and may return to their normal function. Even in severe quinin-intoxication induced in animals, some sections will show among the degenerated ganglion cells areas in which these cells are not greatly degenerated, or only so much affected that a return to a comparatively normal function is possible. This I have myself seen in a number of sections, and it is referred to by Druault in his paper on this subject. Therefore from the experimental standpoint it would seem, as I have just stated, that either the nervous elements concerned in the supply of the areas in question were not destroyed, or were only so much affected that a return to normality was possible.

In this connection it is interesting to refer to such visual fields in quinin-amaurosis as have been described by the late Dr. de Wecker, where in place of islands of retained vision there were areas of symmetric blindness, which joined or nearly joined the fixing point, existing in the one field on the temporal and in the other field on the nasal side.

Ophthalmoscopic vascular changes in quinin-amaurosis have been from time to time noted. Even in Horner's day, conversion of the superior nasal artery into a white string, which was regarded as indicating a thrombosis of this vessel, and white thickenings along the inferior nasal and temporal arteries were observed.

Frank J. Parker[2] describes a thrombus of the inferior branch of the retinal vein and endarteritis of the large branches

[1] *Klin. Monatsbl. f. Augenheilk.*, July–August, 1904.

[2] Archives of Ophthalmology, vol. xxxv., 1906, p. 420.

and obliteration of the small arteries, all of which was observed in the right eye of a patient who was examined four days after the onset of complete quinin-blindness. The left fundus showed the same condition, except that the thrombus was in the superior branch of the retinal vein.

Seeligsohn[1] noted, a year after quinin-amaurosis in a patient aged thirty-six, distinct angio- and peri-vasculitis. Some of the vessels were positively obliterated, being changed into white strings.

A moderate perivasculitis, or appearance simulating this condition, was evident in the eye of Carl Williams's patient, five years after quinin-amaurosis, and a similar although perhaps not quite so marked a condition is present in the eye of the patient whose case history has just been recorded.

In experimental quinin-amblyopia, however, although at one time I thought I had observed thrombus formation, a careful re-investigation of the sections, especially after Ward A. Holden had pointed out that this was an error of observation, convinced me that no true thrombus formation ever takes place, although in long-standing quinin-blindness in animals, the vessels of the optic nerve, of the choroid, and of the retina appear slightly thickened, but the presence of a true endovasculitis was not established. There appears, however, in these eyes to be an œdema, with stretching either of the fibres of the walls of the central vein of the retina, or else of the loose connective tissue which encases it.

It is possible, therefore, as Stölting[2] insists, who has observed in a case of quinin-blindness occurring in a young man, in addition to the classical symptoms of this affection, an atrophy of the iris which was evident two years after the beginning of the disease, that such atrophy depends upon a toxic disease of the vessels brought about by the action of the quinin, an action which he thinks may well take place in vessels in other regions of the eye in the late stages of the disease. In my patient there is no ophthalmoscopic evidence of such vessel disease other than the moderate streaking with white of the retinal vessels near the optic disk, and nowhere

[1] *Centralbl. f. prakt. Augenheilk.*, June, 1906, p. 182.
[2] *Archiv f. Ophth.*, vol. lv., 1903, p. 85.

of any branch of any retinal vessel its conversion into a white cord, or any sign of a thrombus.

The susceptibility of patients who have suffered from quinin-blindness to small doses of the cinchona alkaloids is well illustrated in the man whose case-history forms the basis of this paper, inasmuch as nine grains of quinin, administered during two days, produced great discomfort, tinnitus aurium, and reduction of visual acuteness, which returned to the normal within twenty-four hours after the cessation of drug-administration.

Schwabe's[1] interesting observation, that caffein administered to a woman whose visual field was contracted as the result of quinin-amaurosis produced a still further contraction of this visual field and a distinct increase in the narrowness of the retinal arteries, was to a certain extent confirmed by an observation on my own patient. He took during eight days 120 grains of citrate of caffein, that is five grains three times a day during this period, without producing any very distinct effect upon the central visual acuteness, except perhaps that it was a little less accurate than it had been, with no effect upon color perception, which remained as before, but with the result that his visual fields were five degrees narrower in all meridians than they had been before this drug was administered. The patient himself was conscious of the fact that, to use his own expression, "he did not see as well and that his side sight was less accurate." Opportunity has not presented itself to elaborate this investigation, but there seems no doubt that in so far as the experiment went it served to confirm Schwabe's statement.

[1] Archives of Ophthalmology, July, 1905.

ILLUSTRATING DR. MARLOW'S ARTICLE ON "A CASE OF OPHTHALMIA NODOSA."

FIG. 1

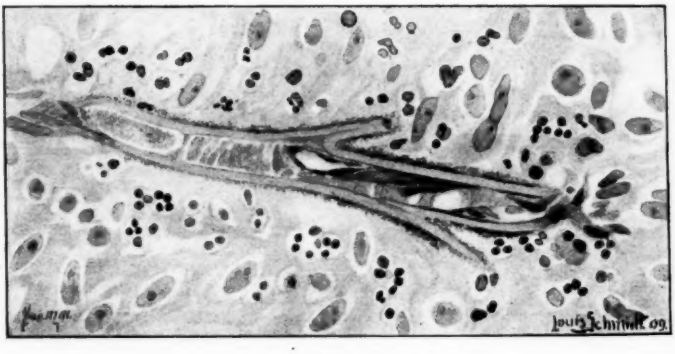


FIG. 2

REPORT OF A CASE OF OPHTHALMIA NODOSA.

By Dr. F. W. MARLOW, Syracuse, N. Y.

(*With two illustrations on Text-Plate V.*)

OPHTHALMIA nodosa, or pseudo-tubercular ophthalmia, was first described by Pagenstecher in 1883, and cases have since been reported by Baas, Weiss, Wagenmann, Kruger, Becker, Hillemann, and Lawford, in Europe, and by George Knapp, Colburn, Denig, and De Schweinitz and Shumway, in this country.

The conjunctival nodes which give the disease its name are produced by the irritation—probably mechanical rather than chemical—caused by the introduction into the conjunctival sac of the hairs of certain species of caterpillar, Lasiocampa or Bombyx (B. rubi, B. pini), Liparis (L. monacha, L. dispar). These seem to give rise to severe symptoms, involving the deeper structures of the eye (iris, etc.). Other species, *e. g.*, Cnethocampa (C. processionea), also cause conjunctival irritation, but of less degree, and the deeper structures are not affected.

The pathology and histology of this disease are so thoroughly discussed by Parsons in his résumé of the different papers on the subject (*The Pathology of the Eye*, vol. i., p. 84), and the varieties of caterpillar responsible for the disease have been so carefully investigated, notably by Lawford, and De Schweinitz and Shumway, that it is unnecessary to do more than to refer those interested to the works of these authors.

The diagnosis of this disease is presumably always easy when the history of a caterpillar having been thrown into the eye is furnished, but that its true nature may be completely obscured by the absence of history and by the conjunctival

reaction is clearly shown by the case of De Schweinitz and Shumway in which after six weeks' observation a tentative diagnosis of tubercle of the conjunctiva was made—there being at that time no suspicion of the true nature of the case. It was only after microscopic examination of a strip of conjunctiva removed under chloroform anæsthesia that the correct diagnosis was made.

The case reported below presented no difficulty of diagnosis; the history and appearances being characteristic.

> I. E., a boy, age six and one-half years, was brought to me on December 20, 1906, with the history that in the early part of September a white caterpillar had been thrown into his right eye. There was severe pain at the time which seems, however, to have soon subsided. There has been no pain since, nor has there been at any time any inflammation.
>
> Examination showed that there were between the cornea and inner canthus nodules, firmly adherent to the sclera, arranged mainly in two groups; one encroaching on the corneal margin and another midway between the cornea and inner canthus. There was also a small nodule above the cornea. There was no sign of inflammation except a very slight redness in the immediate neighborhood of the nodules. The cornea, iris, lens, vitreous, and fundus were normal.
>
> The nature of the trouble was explained to the child's parents and the advisability urged of removing the nodules as far as possible. As they expressed a desire for a second opinion, they were referred to Dr. George de Schweinitz, of Philadelphia, who confirmed the diagnosis and recommendation as to treatment. On December 24th, all the nodules were excised or shaved off under ether with the exception of the very small one above, which could not be found. The bases of the nodules were touched with the electrocautery. The patient made a good recovery and there have been no sequelæ of any kind.

It was hoped that the species of caterpillar might be determined, but in the next caterpillar season the child was seriously ill with inflammatory rheumatism so that any attempt at identification had to be abandoned.

The nodules removed were placed in 10% formalin solution and sent to Dr. H. S. Steensland, Professor of Pathology in the College of Medicine of Syracuse University, who reported as follows:

Specimen consists of six irregular masses of tissue, the largest 0.4*cm* in diameter, fixed in 10% formaldehyde.

Histologically the nodules are miliary tubercle-like in structure, and each contains one or more caterpillar hairs. There is the characteristic central mass of epithelioid cells. There are giant cells, but these seem less sharply defined than is usual in tubercle, and there is less marked mural and polar arrangement of nuclei. The tissue at the periphery is more typically like granulation tissue than is usual in tubercle—that is, it contains numerous capillaries. Occasionally these capillaries show a tendency to penetrate in among the more central epithelioid cells. In this peripheral granulation tissue there are rather numerous polynuclear leucocytes. Groups of polynuclear leucocytes are also present among the epithelioid cells. The presence of the capillaries is evidently a result of the lesion being partly exudative instead of purely proliferative.

Necrosis appears to occur to a very slight extent occasionally in the immediate neighborhood of the hairs. The slightness of the tendency toward necrosis is evidenced by absence of ulceration of the nodules. It will be recalled that injection of dead tubercle bacilli produces tubercle-like nodules, showing little tendency toward necrosis. The effect of the caterpillar hairs appears thus to resemble the effect of dead tubercle bacilli. The caterpillar hairs are found among the more central epithelioid cells. Where the hairs are seen in longitudinal section, they present shape spines coming off at acute angles. The hairs are surrounded usually by a zone of polynuclear leucocytes, but in some places the epithelioid cells abut directly upon them. Typical giant-cells are not seen directly in contact with the hairs. There appears to be a tendency for the epithelioid cells to grow into the hollow shaft of the hair, and where this is seen the hair tends to appear more or less broken up.

THE SURGICAL TREATMENT OF TRACHOMA BY MEANS OF THE COMBINED EXCISION OF HEISRATH AND THE TARSAL RESECTION OF KUHNT.[1]

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(*With five figures on Text-Plates VI. and VII.*)

THE attempt to treat trachoma surgically, by excision of the diseased tissue, dates back to 1874, when Richet of Paris and his pupil, Galezowski, removed the upper retrotarsal fold. The next step was in 1882, in which year the late Prof. Heisrath of Kõnigsberg excised, in addition to the upper fold, a strip of the superior tarsal cartilage, "thus heralding," says Boldt, "an unlooked-for advance in the treatment of this disease." Vossius and Kuhnt improved and extended the scope of Heisrath's original procedure, by removing the fold, together with the cartilage and its conjunctiva, to within $2\frac{1}{2}mm$ of the margin of the lid. This operation is known as the combined excision. Later, Kuhnt devised an operation to which he gave the name of Tarsusausschällung, or shelling out of the tarsus, whereby the tarsus alone was removed without sacrifice of the conjunctiva. This I have designated as the tarsal resection of Kuhnt. Such in brief is the history of what may properly be called the surgical treatment of trachoma, in contradistinction to the mechanical treatment, namely, treatment by expression.

In regard to the present status of these surgical procedures,

[1] Read before the Ophthalmological Section of the New York Academy of Medicine, Oct. 18, 1909.

To Illustrate Dr. Wootton's Article on "The Surgical Treatment of Trachoma by Means of the Combined Excision of Heisrath and the Tarsal Resection of Kuhnt."

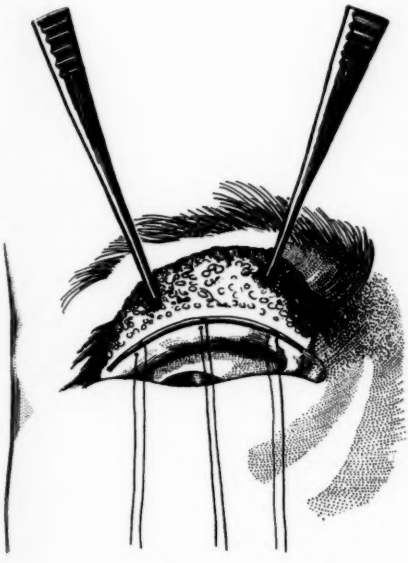

Fig. 1

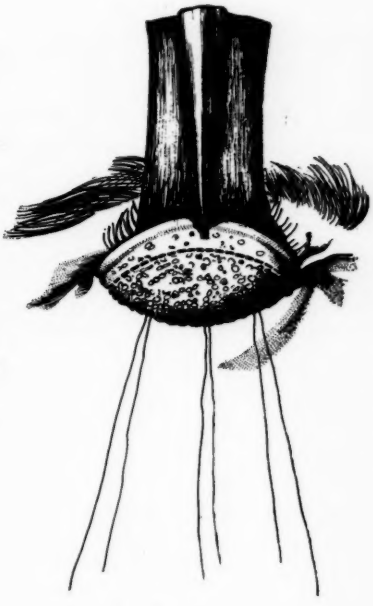

Fig. 2

they may be said to have met with little favor outside of Eastern Prussia. Very little mention of them is to be found in the literature except in the writings of Jacobson, Vossius, Kuhnt, and Boldt, and what little else does exist is frequently condemnatory. Fuchs refers only to excision of the retrotarsal fold which, he says, while radical, always causes great and permanent contraction of the conjunctiva. Czermak states that these measures should never constitute anything but a last resort. Fick approves of excision of the fold when it is markedly hypertrophic, and he adds that some surgeons even remove strips of the cartilage in addition. H. Knapp describes Richet's operation and Heisrath's original procedure, but he makes no mention of the fully developed combined excision, nor does he describe Kuhnt's resection of the tarsus. Swanzy and De Schweinitz refer to all the methods of excision, but, while each of these authors seems to be not unfavorable to their employment, neither gives any detailed description of how to perform them, and, so far as I have been able to discover, no detailed description of the combined excision or of the tarsal resection exists in either the American or English literature.

When we consider that these operations have been continuously performed in Eastern Prussia during the past ten years, and that they are said to have yielded from 50% to 60% of cures and to have afforded practical immunity from reinfection, the indifference with which they have been regarded by American and English surgeons seems rather remarkable, the more so in view of the positive and almost unstinted praise of those who have many hundred times performed them. Jacobson, for example, asks surgeons to convince themselves by personal observation of the utility of these methods, and to cease to rely upon the statements of others. Kuhnt, who was at first an opponent of excision, was finally forced to adopt and to advocate it, not, as he says, through any personal desire on his part, but "hearkening to necessity," on account of the failure of every other method in the treatment of trachoma in Eastern Prussia. Boldt states that from a practical experience of eight years, he can confidently assert that excision rightly applied, especially in severe cases, works wonders; "a favorable estimate," he adds, "which is indeed held by all prac-

titioners who rely upon their own observation." Of course, in this country and in England, trachoma has not yet presented, and probably never will present, the same problem that it did ten years ago in Eastern Prussia, where, according to Kuhnt, it then amounted to a national calamity. Furthermore, in New York City at least, a large proportion of our cases occur in children, in whom the disease can be fairly well managed by medicinal and mechanical means. These reasons, to which we may add the great popularity that expression has rightly acquired on account of the ease of its performance and its general safety, explain, I think to a great extent, the universal indifference of American and English surgeons to the truly surgical procedures. Expression has accordingly been applied rather indiscriminately to all cases in the follicular stage, curing a goodly proportion of those in children, failing in the greater number of cases in adults, and providing in no class of cases any safeguard against re-infections, which have consequently been exceedingly frequent. This I think is about the status that trachoma occupies in relation to the mechanical treatment at present, and I believe that our proportion of successes can be very greatly increased by the addition of Heisrath's combined excision and Kuhnt's resection of the tarsus to our other methods, for they are fortunately indicated in just the class of cases that expression either fails to cure or in which it finds no application, namely, the severe trachoma of adults and trachoma in the cicatricial stage.

The combined excision is indicated in the severe trachoma of adults, in all stages except the cicatricial, and is especially to be recommended when corneal complications are threatening or are actually present. The operation is performed as follows: The eye is rotated strongly downward. The upper lid is doubly everted and held in position by two fixation forceps. In this manner the bulbar conjunctiva is dragged upward upon the surface of the tarsus. The latter furnishes a firm background for the first incision, which is made transversely at the juncture of the palpebral and ocular conjunctiva, as is shown in Fig. 1, slightly modified from Kuhnt. In the majority of cases, this incision separates the diseased from the healthy tissue, and on no account should it encroach upon the conjunctiva of the globe. It should penetrate the conjunctiva alone.

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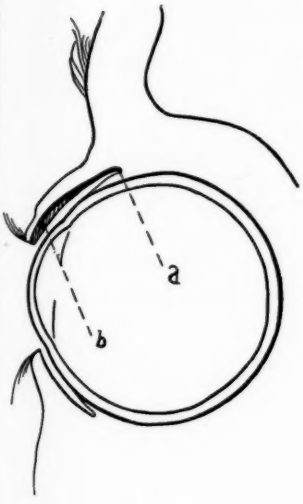

Fig. 3

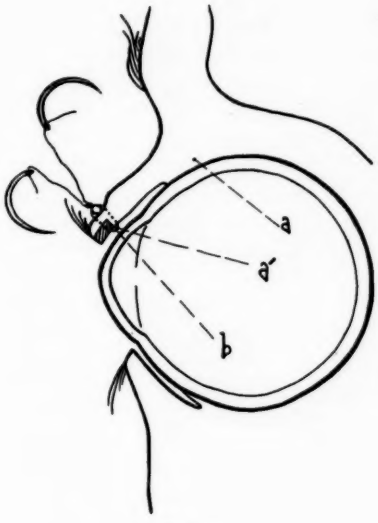

Fig. 4

Fig. 5

Müller's muscle, which lies directly beneath and can be distinctly recognized, must not be injured. In fresh cases, that is to say in those that have previously been submitted to expression, the bulbar conjunctiva immediately retracts and should be dissected free from the subconjunctival tissue with the closed points of the scissors for the distance of about *4mm.* Three sutures, armed with a needle at each end, are now inserted through the lower lip of the wound, as shown in the figure, the needles having been omitted. The lid is then permitted to assume the position of single eversion and is held in position on a horn plate, as shown in Fig. 2 (from Kuhnt). An incision indicated by the dotted line is now made for the entire length of the lid, *2½mm* from its inner margin, exactly parallel to this and through the cartilage, but not penetrating the aponeurosis on its anterior surface. It should on no account approach nearer to the margin than *2½mm.* If follicles exist within this narrow area, they should be forcibly expressed, one blade of the roller forceps being placed upon the outer surface of the lid, the other upon the inner. The lateral horns of the second incision do not quite meet those of the first. They should be joined by a short vertical cut at their external and internal extremities. The cartilage is now carefully separated from below upward from the aponeurosis, which is distinctly visible covering the orbicularis. I find it easiest to perform this dissection with a small, curved hand-chisel, but probably the back of the scalpel can be equally well employed. Upon reaching the upper border of the tarsus, the levator tendon is severed with scissors, and the dissection continued until the first incision is reached, when the whole of the diseased tissue will have been cleanly dissected out. The heavy line *a b* in the schematic drawing No. 3 shows the direction of the dissection and the extent of the tissue removed, the cartilage being represented by the shaded portion. After hemorrhage has ceased, the operation is completed by stitching the margin of the bulbar conjunctiva to the rim of cartilage remaining. It is extremely important that the conjunctiva should be united to exactly corresponding points of the cartilage as, otherwise, irregularity and deformity of the lid will ensue. A smooth result in this respect can be easily obtained by the method suggested by Kuhnt and shown in Fig. 5. The eye is closed, and

the surgeon pulls gently the middle suture in a direction vertical to the margin of the lid. The point at which the suture crosses the upper margin of the tarsal rim is grasped with tooth forceps, one blade being passed beneath the lid, which is then everted. The suture is now passed through the upper margin of the cartilage at the point designated by the teeth of the forceps. The other sutures are similarly treated. Erosion of the cornea followed in two of my earlier cases in which the knots were tied on the under surface of the lid, and I also experienced some difficulty in removing the sutures so situated. For these reasons, I now employ the method of suturing recommended by von Blacowicz and indorsed by Czermak, the sutures being armed with two needles which are passed entirely through the lid, the anterior transfixing the upper margin of the cartilage, the posterior the aponeurosis, muscle, and skin in close proximity to the first. The sutures are tied externally over a narrow roll of gauze. This method of suturing is shown in Fig. 4, as is also the new relation of the parts. The bulbar conjunctiva, which previously reached to the highest point of the original fornix *a*, has been folded over and carried to *a'*, where it has been united to *b*. Thus the entire defect has been smoothly covered, and a shallow fold has been created above the tarsal rim, which fold is composed of the bulbar conjunctiva and is said to be practically incapable of re-infection. Some operators employ a bandage, others do not. If used, it should be discarded not later than the third day. The sutures may be removed on the fifth. Small masses of granulation tissue sometimes appear in the intervals between the points of suturing. As they cause considerable irritation of the cornea, they should be snipped off with scissors, or, when too small for this, should be repressed during the after-treatment by means of caustics. The more sutures one employs, the less trouble there is apt to be from granulation tissue, but, as the suturing process is somewhat tedious, I prefer to insert but three. Excision in the lower lid is a much simpler procedure. The lid is everted and held in position on the horn plate. A posterior incision is now made, running the entire length of the lid and marking the juncture of the bulbar with the palpebral conjunctiva. Here again, the bulbar conjunctiva must on no account be encroached upon, lest symblepharon result and, in

this connection, it must be remembered that the forcible eversion of the lid drags the bulbar conjunctiva forward for a considerable distance. The anterior incision connects the two extremities of the posterior and runs parallel to, and 2½*mm* behind, the inner lid margin. The conjunctiva alone is penetrated, and the tarsal plate should on no account be removed. One extremity of the area thus demarcated is now seized with forceps, and the strip of tissue is dissected from its bed with scissors. Suturing is unnecessary. Granulation tissue should be repressed with caustics during the after-treatment, the larger masses being excised.

In the absence of infection, which I have not as yet experienced, reaction after Heisrath's excision is surprisingly slight. Cold applications are to be avoided, and I have not found them necessary.

Except in those cases in which the bulbar conjunctiva and the semilunar folds are involved, the combined excision relieves the patient completely of his disease at one sitting and renders him practically incapable of re-infection. The after-treatment is exceedingly short, four to six weeks at the outside, and frequently not more than two or three. Pannus is prevented or, if present, is materially benefited with surprising quickness and, if not too dense, it rapidly disappears. Ptosis, if it has existed, is immediately and permanently cured, and any tendency to entropion is instantly corrected with the preservation of a normal lid margin. The movements of the lids are perfect, with the exception that eversion of the upper lid is more difficult than in the normal subject. The excursions of the globes are not restricted in the slightest degree; elevation, depression, convergence, and lateral rotation being in all respects normal.

The tarsal resection of Kuhnt (Tarsusausschällung) is especially adapted to those cases of trachoma that have passed, or are passing, into the cicatricial stage. The cartilage may be thickened with incurvation perhaps of its ciliary border, or the cartilage may be atrophic, its atrophy being accompanied by conjunctival contraction with pannus and its whole train of distressing symptoms. These are the cases upon which we usually perform external canthoplasties, which are generally unproductive of permanent results on account of the conjunctival shrinkage,

or operations for entropion, which are apt to be more or less disfiguring and are frequently only partially successful. The removal of the cartilage obviates the necessity of canthoplasties in the ordinary cases of this type, while the resulting eversion of the lid margin renders any other operation for entropion unnecessary, provided that individual lashes have not been displaced and that the intermarginal space has not disappeared. The operation is simple and is performed as follows: The lid is everted and held in position on the horn plate. An incision exactly similar to the second incision in Heisrath's operation (Fig. 2) is now made through the cartilage for its entire length, parallel to and 2½ *mm* from the inner margin of the upper lid. The conjunctiva retracts slightly as this incision is made and should now be dissected free from below upward until the upper border of the cartilage is reached. This dissection may be performed with short strokes of a scalpel, or much more readily with the small hand-chisel. Ordinarily, it is not very difficult, for the conjunctiva seems to be by no means as firmly adherent to the cartilage as in the normal subject. This is due, says Kuhnt, to the fact that the degenerative changes in the conjunctiva have caused it to become partially loosened. It may be objected, however, that, as these changes are cicatricial in character, they would tend rather to firmer adhesion. Straub of Amsterdam in 1902 advanced an ingenious theory in this connection. He stated that the conjunctiva covering the tarsus in the cicatricial stage of trachoma is not really the tarsal conjunctiva but is the retrotarsal fold, which has gradually been drawn down by the shrinkage and contraction of the tarsal conjunctiva, which is represented in extreme cases only by the transverse cicatricial line of Alt. The conjunctival dissection completed, the cartilage is now loosened from its attachment to the aponeurosis on its anterior surface, the levator tendon is severed and the cartilage removed. Kuhnt says that suturing is "frequently neither necessary nor advisable." Up to the present time I have always employed sutures, passing them through the lid and tying them upon its outer surface, as already described. The good effects of this operation are striking and immediate. Boldt, writing in 1905, after eight years' experience, states as follows: "The operation is one that is particularly gratifying to the operator, for he

can enjoy the absolute certainty that his patient will be in no way injured, will sacrifice no useful tissue, and will be benefited cosmetically, while, furthermore, through the termination of his irritative symptoms and the elevation of his visual acuity and earning capacity, he will have received a priceless boon. The entropion and trichiasis, so far as they are the result of tarsal deformity, are exactly and in an ideal manner permanently relieved, better and more certainly than by any of the other operations recommended, while no thickening, deformity, or scarring of the lid margin mars the truly beautiful cosmetic effect." With these statements of Boldt, in so far at least as they apply to immediate results, I heartily agree.

In judging of the value of these procedures, we must keep clearly in mind the indications for their employment and the objects which they have in view. They are contra-indicated in the follicular trachoma of children, in which form of the disease expression finds its most satisfactory application. They are especially indicated in the severe cases in adults, which are found almost exclusively in hospital practice and which constitute the bane of most eye clinics. Neither operation has for its object the cure of the patient with the restoration of normal conditions. The combined excision is in fact a surrender. It recognizes the practical impossibility, in clinical practice, of curing these cases by any measures which seek to preserve the normal state of the tissues, and simply aims to anticipate by years the natural cure of the disease, with the avoidance of the untold suffering and damaged vision resulting from corneal complications. A severe case of trachoma which has fully run its course presents a conjunctiva devoid of follicles, a shallow fornix, and an atrophied cartilage. The cure is complete, and the patient has probably been rendered proof against re-infection but, unfortunately in most cases, his visual acuity has suffered so severely that he is now unfit for any labor but the coarsest and, through the periodic interruption of his occupation during a number of years, he has suffered immeasurable economic loss. A properly performed excision places him almost immediately in the position which he could otherwise have attained only after years of suffering and disability, forestalls the occurrence of corneal complications, and makes the patient again a useful member of society who, if

circumstances so compel him, may remain in his trachomatous environment without danger to himself or to others. In regard to the ultimate results of combined excision, and especially in regard to the possible supervention of extensive and deleterious cicatricial contractions, a criticism which has so frequently been urged against it, I can of course make no personal statements of any value, my own cases being so very recent. Hirschberg, who in 1897 investigated the subject and who was at that time decidedly opposed to excision, was compelled to admit that case after case was presented to him in which excision had been performed five years previously and in which the movements of the globes were not restricted in the slightest degree. Kuhnt and Boldt, with their experience extending over so many years, both state most emphatically that such criticism is purely theoretical and has absolutely no foundation in fact.

The resection of the tarsus (Tarsusausschällung) finds its most useful application in the cicatricial stage when the trachomatous process has run its course and the patient's sufferings are apparently due to the presence of the distorted cartilage. The operation is founded on firm surgical principles and simply removes a tissue, the function of which has become perverted and which still remains a source of detriment and danger to the patient. The good results are immediate and are said to be permanent, and the gratitude of these patients, relieved almost at once of their pain and disability, is extremely gratifying.

My own experience embraces thirty-seven cases operated upon during the past spring and summer. They were all severe cases, many of them complicated by keratitis, and the results have been so generally satisfactory that I feel that I can confidently recommend these procedures to other surgeons for a more extended trial.

REFERENCES.

J. Boldt. *Trachoma.* Translation by J. Herbert Parsons and Thos. Snowball. London, 1904.

J. Boldt. *Zeitschrift für Augenheilkunde*, 1905.

H. Kuhnt. "Ueber die Therapie der Conjunctivitis Granulose." *Klinisches Jahrbuch*, 1897.

Czermak. *Augenärtzliche Operationen*, 1908.

H. KNAPP. *Norris and Oliver's System.*
DE SCHWEINITZ. *Diseases of the Eye*, 1906.
SWANZY and WERNER. *Diseases of the Eye*, 1907.
FICK. *Text-Book of Ophthalmology*, 1896.
FUCHS. *Text-Book of Ophthalmology*, 1908.
JACOBSON, SR. *Beiträge zur Pathologie des Auges*, 1888.
STRAUB. *Zentralblatt für praktische Augenheilkunde*, 1902.
HIRSCHBERG. *Ueber die körnige Augenentzündung in Ost- und West-Preussen und ihre Bekampfung*, Jena, 1897.

TWO CASES OF ENUCLEATION NECESSITATED BY GETTING INTO THE CONJUNCTIVAL SAC THE POINT OF AN ANILINE PENCIL.

By Dr. JOHN DUNN, Richmond, Va.

Case 1.—Late one night in June, 1909, I was consulted by Mr. L., aged 36, because of a severe inflammation of his left eye. When he reached my office he was beside himself with pain, being scarcely able to control his groans sufficiently long to allow me to examine him. The whole left side of his face and neck was covered with a fresh blister, the result of his physician's effort to relieve his sufferings. Over the skin about the inner canthus was a considerable amount of conjunctival secretion, colored purple, suggesting at once an aniline staining.

The greater part of the cornea was clouded as though a caustic had burned through the epithelial layer and slightly into the substantia propria. The interior of the eye could not be examined. The conjunctiva was inflamed; in the upper inner quadrant of the ball was an area *2mm* by *10mm*, dead white, as though the underlying conjunctiva and adjacent layers of the sclera were necrotic. Beneath the upper lid was found the partially dissolved point of an aniline pencil. The patient stated that four nights before he was seated at a table with a friend. Both were writing. Suddenly his friend said: "Look out, the point of my pencil has broken off and I believe it flew into your eye." At first he was conscious of no inconvenience. After a while the eye became painful and the pain increased in spite of all efforts of his physician to relieve him. I washed out the conjunctival sac with a 5% solution of tannin and afterwards used atropia. I gave Mr. L. a Dover's powder and told him to report early the next morning. He did so and said he had passed a fairly comfortable night; that business of importance required his presence at home that day; that he would return that evening or next morning should he have any trouble. The appearance of his eye, save for the absence

of the aniline staining, was unchanged. Three days later he returned, suffering intensely. He had not reported sooner, he said, because the pain which returned soon after his arrival at home had been so great that he had "been unable to leave his bed." Evidences of panophthalmitis were now present. The upper lid was so swollen that only with difficulty and with much pain to the patient could a view of the burnt area on the sclera be seen. The ocular conjunctiva was œdematous; the cornea so clouded that no clear view of the iris was to be obtained. The burnt area on the sclera was still dead white; around it the tissues were a dirty white, swollen, and in them could be seen numbers of congested blood-vessels. The patient's sufferings were intense. Being unable to relieve these, and the swelling of the upper lid increasing to such an extent as to render applications beneath it practically impossible, I advised enucleation, which was readily consented to. The necrotic conjunctiva was dissected out after the enucleation. For two or three days the swelling of the tissues of the lid and orbit continued to increase in spite of constant treatment, and the accompanying pain was severe. Gradually, however, the inflammation subsided.

CASE 2.—The second case occurred in the practice of a confrère. Here, too, the patient lived in a small country village and, having got into his eye the point of an aniline pencil with which he was writing, the fragment of aniline had been allowed to remain in the conjunctival sac four days. At the end of this time the terrible suffering occasioned thereby had driven the patient to a large city, where treatment had proven of no avail and enucleation had become necessary.

In the first case the pencil from which the point had come was the No. 859 Eagle Diagraph Copying Pencil. I wrote to the Eagle Pencil Company for its component parts. In a polite note they informed me that the copying lead in that particular brand of pencil was "composed of violet aniline, gum tragacanth, graphite, and lampblack." In my reading I can call no cases similar to the two above reported. In my experience I have known of only one case where the point of an aniline pencil caused inflammatory trouble. This was where the pencil point had been broken off in the tissues of the brow. Much swelling and pain preceded and followed the removal of the offending body. This case came under my observation some years ago and I have no notes from which to give more exact data. How far continuous treatment after

his first visit might have influenced the ultimate result in the case of Mr. L. I cannot say, as he came to me late one night and left town early the next morning. In both cases here reported the piece of copying lead remained under the lid four days before it was removed. The part of the conjunctiva and underlying sclera against which the pencil point had remained this length of time was apparently necrotic, being a dead white and entirely devoid of blood-vessels. Three days later, the date of Mr. L.'s second visit, this appearance continued while the immediately adjacent conjunctiva was a swollen dirty white showing numerous highly congested small vessels—whether a slough would eventually have formed I do not know. The general condition of the lid and orbital structures showed that infection had set in. No microscopic examination of the removed eye was made. To the naked eye there appeared evidences of both iritis and a cloudy retina.

Vogt (*Arch. d'opht.*, April, 1906) in an interesting and valuable article on the action of aniline colors upon the conjunctiva calls attention to the differences in burns from alkalis and acids in general, making thereupon some instructive comments. He sums up as follows the results of his experiment with the aniline perforations. "The application of small quantities of acid, neutral, or mordant aniline colors to the conjunctiva produces little or no inflammatory reaction. The application of equal quantities of the basic colors causes a violent inflammation which may result in panophthalmitis. The different basic colors produce upon the conjunctiva effects of varying intensity, *the injuriousness increasing with the basicity of the colors.*"

When the basic anilines have found their way into the conjunctival sac Vogt advises the use of a 5% solution of tannin, which forms with the anilines insoluble compounds. Of course, the tannin cannot be expected to neutralize the effects of the aniline burn. Its use, therefore, is of most value, if applied soon after the introduction of the basic anilines. In both the cases above reported the aniline had remained in the conjunctival sac for four days before removal.

A MODIFIED SIDEROSCOPE.

By Prof. W. KOSTER GZN., Leyden.

Translated by Dr. Matthias Lanckton Foster.

(*With two figures in the text.*)

THE sideroscope of Asmus is to be found to-day in most eye clinics, but I do not believe I am wrong when I say that it is used very little. The cause of this is without doubt because it is so difficult to use; the adjustment of the telescope to the scale, which must be seen in the little plane mirror, takes much time and patience, and during the investigation both the chief and his assistants become wearied and irritated. Although I have never found these difficulties so great that I could say with Knapp that it required the patience of a saint to use this delicate instrument, yet I have found them sufficient to induce me to seek an improvement.

It would naturally be more convenient to use the reflection of a pencil of light from a concave mirror which would form an image at a sufficient distance from the source of illumination. Asmus did not use this method because such a mirror would be too expensive; he says that a very small plane mirror of metal costs ten marks and a mirror ten or fifteen times as large is necessary to throw a perceptible image a distance of at least five metres. Moreover it must have a longer focal distance, and with its large surface must be very light in order not to break the cocoon threads. It would be technically possible to make such a mirror of metal, but its cost renders it impracticable. The glass mirrors of the ophthalmoscope would be light enough, but they are made too inaccurately for this purpose; among a large number not one was to be found which focussed the light satisfactorily at more than two metres, but

this focal distance is much too small. This shortcoming could be obviated by the aid of a minus lens fastened in front of the mirror.

In order to utilize the motion of the reflected light in the sideroscope of Asmus I made the following contrivance. A powerful incandescent electric light was placed nine metres in front of the instrument and the light passed through a lens of 1 D. with a large aperture about one metre away. The weakly converging light was directed upon a little plane mirror and brought to a focus five metres in front of the sideroscope, where it formed an image of the glowing films of the bulb. I was greatly pleased with this contrivance, but it was still inconvenient to be obliged to take the time necessary to direct the light at the beginning of every examination.

I solved the question of a large, light, and cheap concave mirror of accurate curvature and long focal distance in the following way. I took an ordinary spectacle glass of + 0.25 D, ground as thin as possible and had one of its sides silvered, making a concave mirror of one metre focal distance which threw very fine images more than ten metres. The wooden case of Asmus's sideroscope did not afford room for this mirror, but a satisfactory mirror was made by cutting a large segment from each side of the lens, making it about *2cm* broad by *7cm* high.

The "iron searcher," which Hirschberg introduced into ophthalmological practice some time ago, I do not prefer to the original sideroscope, because its sensitiveness is too slight. The instrument works likewise with reflected light, but the scale is placed much too near the mirror. When a positive movement can be read from the scale the movement of the magnet needle can be seen and the rest of the contrivance is not needed. As Asmus says in his last article, the use of the scale is needed in those cases in which very minute bits of iron are in the eye, or where moderately small bits are situated deep in the eye or in the orbit.

As the sideroscope of Asmus provided with the large mirror has given continuous good service I have had a modified model constructed in order to make use of the entire large mirror and also to correct some faults of the old construction. I wished the position of the magnetic rod to be such that the

head of the patient could be freely brought near it, that it could be raised and lowered, and that it could be used without

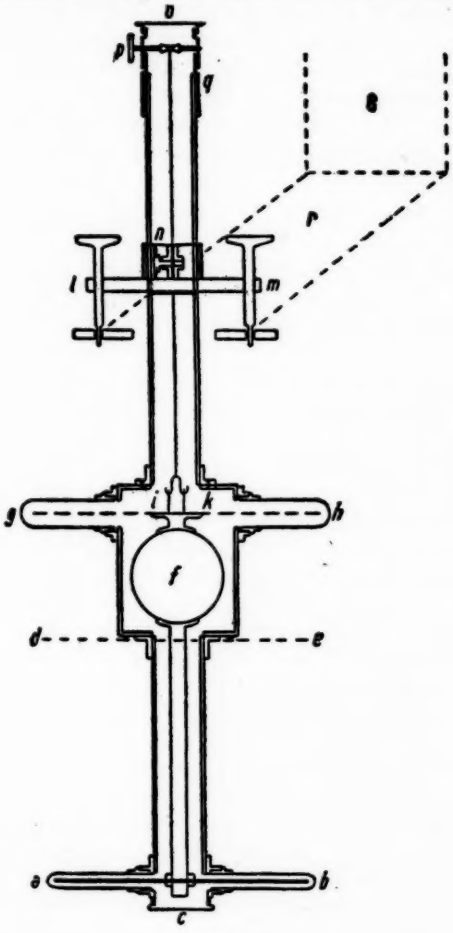

FIG. 1.

difficulty in a short time. I also took into account in the construction of the instrument that it might be quickly and conveniently packed away and again set up ready for use. I

believe that these requirements are fully met in the modified model. I frequently hear and notice that my colleagues are not satisfied with Asmus's and Hirschberg's instruments and as I am often able to make a correct diagnosis with the aid of my sideroscope when others have failed, so I will no longer delay the description of my instrument.

Figures 1 and 2 illustrate the main points of the construction. Fig. 1 shows that the instrument does not rest on a little

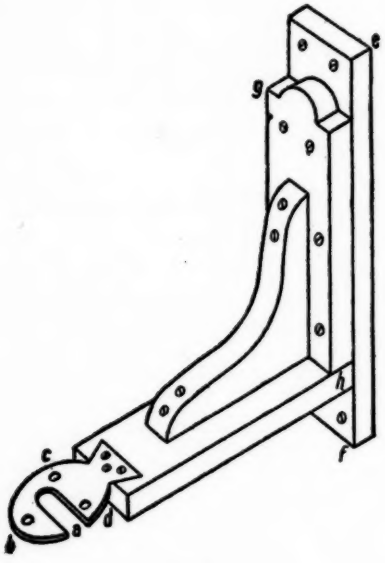

FIG. 2.

table, but hangs up in a little copper table secured with three screws. The little table bed (Fig. 2) is fastened to the wooden frame which may be attached to the wall at the desired spot. It is possible to hang the instrument in the notch and to remove it and to stand it in a vertical position in a wall cabinet. The glass tube *oc* of the sideroscope is movable up and down about 20*cm* when placed in the little table. The large mirror *f* is in a wooden box closed in front and behind by movable glass plates. The true magnetic needle *ab* lies below,

placed in the same way as in Asmus's sideroscope. The two other tubes for the astatic magnetic needle are above the box; the needle *gh* has at *i* and *k* two circular curves which rest in the hollowed out supports. A large aperture in the central case makes possible the convenient introduction and removal with relaxed cocoon threads. Two equally strong little magnets can be placed at *de*, before and behind the glass tube, which serve to increase or dull the sensitiveness, as they are placed in accordance with, or contrary to, the true magnetic needle. These little magnets serve to counteract the disturbance of the electric street current upon the sideroscope. The larger magnet, which serves this purpose and may also be necessary in other cases, as to direct the magnetic meridian at will in the room, can be placed at *e* or *h* (Fig. 2) upon the horizontal support.

The cocoon fibres, on which the whole thing hangs, are the same as in Asmus's apparatus; the contrivance to raise and lower and to remove the torsion of the threads is the same.

For light I use an electric bulb with vertical films standing in a small case which can be closed on its open side by two milk-glass plates so that a picture of only one film is thrown. This image is caught on the centimetre scale on the bottom of a box about 75*cm* long by 15*cm* deep; one can work them by daylight if only the sun does not shine directly on the scale. Instead of an electric bulb, any light, such as a strong candle, may be used if a vertical rod about 1*mm* thick is placed in front of it so that the shadow will serve as an index. The light strength can be increased by means of strong lenses, but this is not necessary. When the source of light is feeble, the room must naturally be darkened in order to work comfortably.

The sensitiveness of the instrument is naturally the greater the farther the scale is placed from the sideroscope; if the examination room should not be long enough, its length may be doubled by means of good mirrors, but a considerable amount of light will be lost in this way.

I hope soon to report a number of cases that illustrate the need of a sensitive sideroscope, and to add some remarks on the localization of bits of iron by means of the instrument.

ADENOCARCINOMA OF THE PITUITARY BODY. REPORT OF A CASE UNDER OBSERVATION FOR FOUR AND A HALF YEARS. PATHOLOGICAL EXAMINATION.[1]

By Dr. WILLIAM T. SHOEMAKER, Philadelphia.

(*With one figure on Text-Plate VIII. and five charts in the text.*)

TUMORS of the hypophysis are not uncommon, a great number of them having been accurately recorded by different observers. The case here reviewed was under constant observation for four and a half years, and upon first examination the diagnosis of tumor of the optic chiasm pushing down into the left orbit was made, and concurred in by Dr. Wm. G. Spiller, who saw the case in consultation several times.

I am indebted to Dr. George P. Müller for the most careful autopsy and examination and preparation of the specimens, and to Dr. Alfred Reginald Allen for the microscopic examination and interesting report herewith contained.

Most of the reported tumors which have come to pathological examination were sarcomas, a number were adenomas, and a few were carcinomas or adenocarcinomas. They are always of interest, not only *per se* as are all intracranial tumors, but also in their relation to and bearing upon acromegaly; and, furthermore, on account of any disclosures which they might make relative to the function of the pituitary body. Whatever these disclosures might have been, however, the exact use and function of the pituitary body and its relation to acromegaly are still in question. For example, Thom[2] points out

[1] Read before the American Ophthalmological Society, July 14–15, 1909.

[2] *Archiv f. microscop. Anat.*, 1901.

TO ILLUSTRATE DR. SHOEMAKER'S ARTICLE ON "ADENOCARCINOMA OF THE PITUITARY BODY."

Fig. 6.—Photograph of base of skull, showing destruction of bone.

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that enlargement of the pituitary is by no means constant in acromegaly; and Kollaritis,[1] while reporting two cases of his own of tumor of the hypophysis without acromegaly, tabulates fifty-two other cases without acromegaly. He rather regards tumor as one of the symptoms and not the cause of acromegaly.

The anatomical situation of the hypophysis, at the base of the brain in the median line forward, is such as to give in case of tumor or enlargement a fairly constant and quite characteristic symptomatology, so that diagnosis in so far as location is concerned, is comparatively easy.

Headache, very frequently occipital, would seem to be a part of almost every case. Vertigo, generally present at times during the course of the disease, is less intense than in cerebellar tumors. Nausea and vomiting are quite variable in their onset, persistence, and intensity. The intellectual faculties may remain intact throughout, or may suffer deterioration. Schuster[2] found mental disturbances in 66% of hypophyseal tumors; more, he says, than found in tumors of any other region except in tumors of the frontal lobe and corpus callosum.

Among the mental disturbances noted in case records are, hallucinations, insomnia, hebetude, disorientation, delusions of persecution, drowsiness, and somnolence. Drowsiness has been especially commented upon by Dr. Hansell, who reported a case of pituitary tumor before this Society in 1906; the patient for twenty-two days slept twenty-two hours out of each day. Hansell regards this symptom as having some diagnostic value.

Glycosuria is a frequent complication, and obesity has been observed in some cases. Interference, sooner or later, with one or more of the cranial nerves would seem to be an absolute necessity with any progressive growth or enlargement of the hypophysis. Escape for the optic chiasm is infrequent, although the observations of Zander upon the "Position and Dimensions of the Chiasm, and their Significance in the

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[1] *Deutsche Zeitschrift für Nervenheilkunde*, 1904.

[2] Quoted from Barrett, *Journal of Nervous and Mental Disease*, p. 531, 1905.

Diagnosis of Hypophyseal Tumors," are extremely interesting and worthy of attention.

Zander[1] found great variation in the anatomical situation of the optic chiasm, and declared the generally accepted and taught view that it occupied the so-called sulcus chiasmatis to be incorrect. The posterior margin of the chiasm generally overreaches the upper edge of the dorsum of the sella turcica. The hypophysis cannot, according to Zander, lie behind the chiasm, but lies much more frequently in front of it. Furthermore, in 60% of cases the chiasm is displaced markedly to the right or left.

Enlargement of the hypophysis, he says, in a vertical direction must reach at least 0.5*cm* before the chiasm would be pressed upon. In these variations of anatomical position, Zander finds an explanation for the relatively large number of cases of acromegaly with hypophyseal tumor without temporal heminanopsia. Fawcet and Lawrence also found that the chiasm did not occupy the sulcus, but lay behind it.

The symptoms referable to involvement of the optic chiasm, optic tracts, or optic nerves are, however, very variable. Often enough we have bitemporal hemianopsia, unilateral blindness, and, finally, double blindness with optic atrophy. Such a course might be considered classic, but as variations we have to note optic atrophy, without hemianopsia, the presence of scotomas, partial contraction of the visual field preceding probably the development of a bitemporal defect, contraction for color only, and paracentral as well as hemianopic scotomas.

These conditions were discussed by De Schweinitz in connection with Hansell's case. Choked disk is said to be uncommon. Rath,[2] in an analysis of 38 cases of hypophyseal tumor from the literature, found it noted but five times. The relative frequency of choked disk in tumor of the hypophysis, as compared to tumors of the brain in other localities, may be judged from Kamperstein's statistics. In 76 cases of brain tumor with choked disk the tumor was of the hypophysis three times.

The other localities for the tumor accompanied with choked

[1] Quoted from Wilbrand and Saenger, iii., 119.

[2] *Archiv f. Ophthal.*, Bd. 34, 1888.

disk were as follows: Cerebellum, twenty-three times; frontal lobe, twelve times; corpora quadrigemina, seven times; temporal lobe, six times; occipital lobe, five times; parietal convolution, four times; corpus callosum, three times; optic thalamus, twice; third ventricle, twice; peduncle of the cerebellum, twice; fourth ventricle, once.

Optic atrophy more or less complete, on the other hand, has been noted in most of the cases studied. So frequent is it that Hansell considers it "not improbable that some of the cases of so-called idiopathic optic atrophy, so often unexplainable, are cases of tumor of the pituitary body, for such tumors may exist for a long time without other symptoms than obscuration of vision through optic-nerve atrophy."

The third nerve is often affected. Ptosis, ophthalmoplegia interna, or other third-nerve paralyses may occur. Bruno claims that ptosis is frequently one of the first if not the first symptom. It is also noted by Wilbrand and Saenger that ophthalmoplegia and ptosis may recover.

An important and significant cranial-nerve involvement is that of the trigeminus, and one, too, which I think is apt to be overlooked or disregarded. The above authors say that photophobia, due to irritation of the trigeminus, may be a prodromal symptom. Trigeminal palsy follows. This was the condition in Audry's case.[1] The first symptoms were vomiting, vertigo, and intense photophobia; five weeks later, anæsthesia of the conjunctiva and cornea, suppurative retinitis, conjunctivitis, etc. The tumor was a carcinoma.

The olfactory nerves would escape injury unless there were great extension forward. Tests of the sense of smell should be carefully made on both sides. Positive or negative findings would be of diagnostic value. The auditory nerves may be affected if the roaring in the ears noted in my case, and probably in others, was due directly to the pressure or irritation of the tumor.

Operation for the removal of hypophyseal tumor has been performed a few times in the last three or four years, and marks a distinct advance in brain surgery. The first successful operation of this kind was performed by Hochenegg,[2] of Vienna.

[1] *Virchow-Hirsch Jahresber.*, 743, 1888.

[2] *Annals of Surgery*, p. 781, 1908.

The great difficulty lies in reaching the hypophysis in a manner suitable for the removal of a tumor. The best way of doing this would seem to be by the method devised by Eiselberg, Schlofer, and Tandler. The nose is turned back and the entire nasal cavity reamed out until the apex of the cone so formed reaches the bed of the hypophysis.

H. Borchardt[1] operated for hypophyseal tumor through the frontal sinus. By lifting the frontal lobes, the hypophysis could be reached, but was inaccessible for removal. The operation was accompanied by alarming hemorrhage. Eiselberg[2] reports three cases operated upon in January, 1907. He used the nasal flap approach with removal of the base of the frontal sinus, but thinks Hochenegg's idea, of going directly through the nasal fossæ without disturbing the frontal sinuses good, in that it would prevent subsequent deformity, and quite feasible, especially where the tumor is benign.

AUTHOR'S CASE.—On May 26, 1904, an unmarried German woman, then thirty-five years of age, presented herself at the eye dispensary of the Presbyterian Hospital, Philadelphia. She had had pain in the left eye for one week and the vision in this eye had been noticeably poor for one year. She gave no history of headache, vertigo, nausea, or vomiting, but all four symptoms played their rôle in the course of the disease. With the exception of muscular rheumatism at times, she had always enjoyed good health, and while no history of lues was obtainable, her subsequent tolerance to mercury and potassium iodid would justify suspicion. Her eyes had been examined two years previously and glasses prescribed.

Examination showed the left eye to be slightly proptosed, the proptosis being directly forward. Movement of the left eye toward the temporal side was subnormal; other ocular movements on both sides were full. There was less room within the orbit all around when the fingers were pushed beneath the margin, and the skin of the face and the cornea were less sensitive than on the right side. V. O. D. $= \frac{5}{14}$; Ac. = ty. 50–14÷35*cm*; V. O. S. = counting of fingers at 20*cm*.

The pupils were equal, about 3*mm* in diameter, solar illumination, and the irides responded to light, accommodation, and convergence. The test for hemianopic pupillary inaction was negative.

[1] *Loc. cit.*

[2] *Loc. cit.*

Ophthalmoscopic Examination.—Right eye: Media clear, nasal margin of disk blurred, trace of definition temporal side. The disk was moderately swollen, the summit being seen with + 3 D., while the fundus elsewhere was about + 1 D. The arteries and veins were tortuous. There were no hemorrhages. *Left eye:* Media clear; disk rather sharply defined and atrophic. The veins were large but not tortuous.

The right visual field showed concentric nasal contraction and complete or almost complete temporal loss, with a fairly well-defined vertical line of separation 8 degrees or 10 degrees overshot. Color fields for red and green corresponded.

The left visual field consisted of a large nasal area 10 degrees or more beyond fixation, and a smaller temporal area about 30 degrees beyond fixation, connected by a 10-degree band or isthmus above.

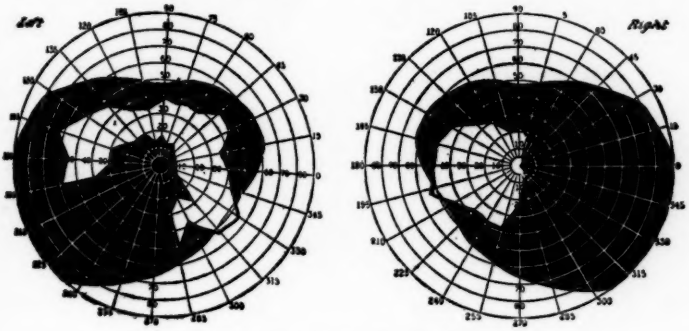

FIG. 1.—Visual fields in May, 1904.

The headache which appeared about August varied much in frequency and severity but was always of like character and location. The pain was in the back and left side of the neck, and the left side of the head up to the level of the eye. Sometimes it was excruciating, causing the patient to scream; at times it would be of daily occurrence, and sometimes she would be free from it for a long time and feel perfectly well. The vertigo, noted first in July, was also very irregular, but was more or less in evidence throughout. Nausea was never a very disturbing symptom, although noted at times, after August, 1904, and the vomiting occurred in paroxysms.

In October, 1905, it was persistent for nearly a week. Again in July, 1908, shortly before death, vomiting was frequent and persistent. At other times no history of it could be obtained.

The nutrition remained excellent and only very late did mental deterioration commence, but even then was scarcely noticeable. She gained markedly in weight after 1905, and presented a different facial expression, possibly becoming acromegalic.

November 29, 1904; October 6, 1905, and in July, 1908, she was admitted to the German Hospital. Every time there was a concentrated outbreak of all the symptoms she ever had—a veritable storm—her suffering was intense, and it was thought that each attack would be final.

The first time she remained seven weeks. She received 3 j daily of mercury by inunction, but was not ptyalized at the end of five weeks. Potassium iodid was started about the third week and continued until four months later, when she was taking 420 grains daily and was feeling well.

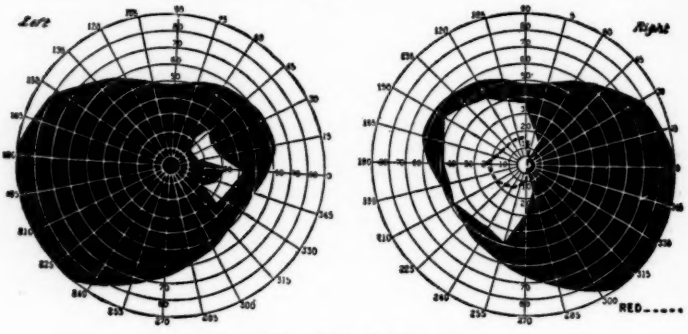

FIG. 2.—Visual fields in October, 1905.

The second time she remained five weeks, improved rapidly, and was again discharged feeling well, and apparently no worse off than at any time previously.

The third time, she died, as she was expected to do the first and second. Her condition during the last ten days, as it appears on the hospital record, was as follows: Persistent headache, nausea, vomiting, and loss of bladder control. Cerebration slow; questions answered in a thick guttural tone; mask-like expression. Parotitis and throat condition as noted below. No hemiplegia. Sensory examinations unsatisfactory. On August 1st she gave the first signs of dissolution. Irregularity of heart action; very rapid, poor quality to first sound. Commencing dilation of right side of heart; chest beginning to fill; breathing labored but no Cheyne-Stokes. Glycosuria, sugar 1½% to 2%. Death on August 3, 1908.

In 1907 these "spells," as she called them, were more frequent but less severe than the three noted above. She would at times fall, but would not lose consciousness. Once she fell down a flight of steps, but sustained no serious injury.

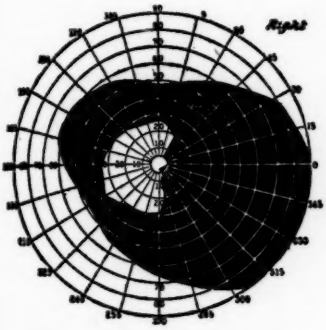

FIG. 3.—Field of right eye, 1906.

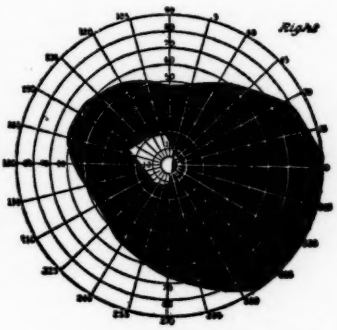

FIG. 4.—Field of right eye, 1907.

The knee-jerks were always active, and during her periods of greatest suffering were exaggerated, being more so on the right side. Kernig's sign was generally positive, and was also more pronounced on the right side.

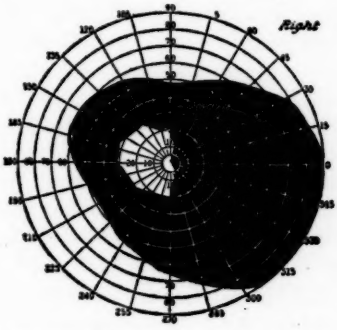

FIG. 5.—Visual field of right eye, 1908.

Station remained generally good until 1908, when she walked with some uncertainty and hesitation. At this time she also complained of a constant buzzing in the left ear. In June, 1907, she had, rather suddenly, difficulty in

breathing. Examination of her nose and throat by Dr. Barton H. Potts disclosed a large nasal polyp, which was removed. The sinuses were examined at the same time, and a negative report given, with the remark that the right side was suspicious.

A second examination was made by Dr. Potts, July 24, 1908. The report reads: "Chronic laryngitis, but no acute process, no thickening, swelling, or great changes. Both cords move freely and approximate normally. Left side, parotitis." Three days later, marked congestion of the roof of mouth, tonsils, and pharynx. Marked parotitis, left side. The right parotid gland became involved August 1st. Cultures from the throat showed pure staphylococci, but no streptococci.

The sense of smell was tested several times during the course of the disease and found to be intact on both sides. Blood and urine analyses were also made at different times. Two of these, one in 1905 and one in 1908, showed albumin, hyaline and granular casts in the urine, and a slight reduction of hemoglobin in the blood, with a leucocyte count of 13,000.

In 1904 an X-ray was made of the head by Dr. Wm. S. Newcommet. An unmistakable malposition and malarrangement of the structures along the base in the middle fossa were demonstrated. There seemed to be a saddle-like depression in this region.

The more important changes which were noted during the four and one-half years of observation can best be summarized as follows:

From May 25, 1904, to November 29, 1904, the vision of the right eye was mostly $\frac{5}{7\frac{1}{2}}$, partial; once it was $\frac{5}{10}$, and once $\frac{5}{5}$, partial.

The left eye was recorded as counting fingers at 20*cm*, then at 10*cm;* then in the nasal field imperfectly; and finally as hand movements a little in the nasal field.

During 1905 the vision of the right eye ranged from $\frac{5}{10}$ to $\frac{5}{7\frac{1}{2}}$, but was more often $\frac{5}{7\frac{1}{2}}$. The left eye counted fingers imperfectly at 10*cm*, saw hand movements at 50*cm*, and finally registered light perception only.

In 1906 the vision of the right eye was $\frac{5}{7\frac{1}{2}}$ during the first two months. This was her best year, and she was seen but a few times.

In 1907 the vision of the right eye was generally $\frac{5}{15}$, once

it was $\frac{5}{10}$. Corrected with a cyl. + 1 D. axis 90° it was again brought to $\frac{5}{7.5}$; with correction, ty. .75 was read with some difficulty.

The left eye had light perception only. It will be noticed that central vision in one eye remained good, in spite of several attacks of optic neuritis and increasing atrophy until the end. At no time was she unable to go around alone on account of blindness.

The ophthalmoscopic changes are interesting, as showing repeated or recurrent attacks of acute neuritis.

Fundus.—May 26, 1904, right eye: Optic neuritis, with moderate swelling of disk; arteries and veins rather full and tortuous. Left eye: Post-neuritic atrophy, veins large and dark, but not tortuous.

Three months later, the swelling of the right disk had almost subsided. The disk was atrophic; the vessels were of good size. This was immediately followed by a recurrence of neuritis. August 16, 1904, right eye: Swelling of the disk increased and the veins became wider. There were no hemorrhages. The atrophy of the left nerve was progressing. Three months later the swelling of the right disk began to subside. Near the disk margin glistening exudation covered in part some of the vessels.

In May, 1905, the right disk was noted as becoming very pale and atrophic. The vessels were still tortuous. The left disk was very atrophic and the vessels were not tortuous. Three months later the conditions were about the same.

In November, 1905, after leaving the German Hospital, the right disk was quite sharply defined and the atrophy had progressed. The condition was becoming like that in the left eye.

No special changes other than increasing atrophy and quiescence were observed until May, 1907, when the right disk was swollen about 2 D., the margins were again blurred, and the vessels were very large and tortuous, making sharp turns. No hemorrhages. One month later white spots were accumulating on disk below, and the disk margins were becoming sharper.

In April, 1908, the atrophy had advanced, the vessels were noted as still being tortuous and kinky, and narrowed as they entered the disk.

The visual fields were quite characteristic of the disease.

They are shown in Figs. 1, 2, 3, 4, and 5. They correspond to the fields most often found in chiasm disease. The nasal field, greatly contracted, of one eye will persist, and the fellow-eye will in a comparatively short time become blind. In this case the left optic nerve was found to be infiltrated with the tumor cells.

Pathological Report, by Dr. George P. Müller and Dr. Alfred Reginald Allen.

Autopsy No. 1176. F. S., aged thirty-nine, died August 3, 1908. Autopsy performed ten hours after death.

Anatomic Diagnosis: Tumor of the brain; chronic parenchymatous nephritis; fatty degeneration of the liver; passive congestion of the spleen; chronic adhesive pleuritis (left).

The thyroid and adrenal bodies appeared perfectly normal in size and appearance.

Upon opening the calvarium the dura was observed as being thickened and tending to adhere to the skull. There was no bulging of the brain on opening the dura, the pia-arachnoid was slightly congested, and some excess of fluid was observed. Upon drawing the frontal lobes upward a growth was encountered adherent to and growing into the base of the skull in the middle fossa. The sella turcica, body and wings of the sphenoid were eroded, and upon the left side the sphenoidal and ethmoidal cells were opened up, the tumor extending as far as the soft part of the naso-pharyngeal wall (Fig. 6 Text-Plate VIII).

The mucous membrane of the latter was perforated in one place. The optic nerve and the nerves leading to the sphenoidal fissure on the left side seemed to be involved. The growth was soft and spongy, and upon the inferior aspect of the brain was apparently encapsulated, but was free-growing in that portion, pushing into the ethmoid. It was of pinkish-yellow color. After removal of the brain the tumor was found to measure 5*cm* in length, 3*cm* in width, and to extend upward, backward, and laterally, finally protruding as nodular masses about 1*cm* in diameter through the floor of the third ventricle. The foramina of Monroe were thus obstructed, causing an obstructive hydrocephalus of moderate degree.

The tumor was examined histologically by Dr. Alfred Reginald Allen, who reports "that it possesses a rather fine and irregular alveolation. The alveolar walls are loose and indistinct, and in them appear numerous thin-walled blood-vessels. The bulk of material consists of tumor cells, which are mostly, from pressure influences, of irregular shape, but here and there show distinctly a columnar arrangement. They infiltrate irregularly throughout the entire mass, with occasional tube-like formations being developed. These cells are provided with large, oval, vesicular nuclei. Occasionally one encounters cells staining faintly, but more markedly than the bulk of the cells, with eosin. These cells possess two or three nuclei and are most probably small giant-cells. Globules of varying size, clear, homogeneous, and taking eosin tints slightly, are occasionally found in spaces, sometimes in blood-vessels, and are likely colloid substances.

"The optic and third nerves were both examined, the right second and third being uninvolved except by pressure; those on the left side being infiltrated by the neoplasm."

REPORT OF MEETINGS OF THE SECTION ON OPHTHALMOLOGY OF THE NEW YORK ACADEMY OF MEDICINE.

By Dr. JOHN R. SHANNON, Secretary.

MEETING OF MONDAY, NOVEMBER 15, 1909. DR. W. E. LAMBERT, PRESIDENT, IN THE CHAIR.

Dr. E. S. Sherman presented a case of **pemphigus of the conjunctiva.**

He gave a history of this rare disease. Horner saw three cases in seventy thousand eye patients. At the Newark Charitable Eye and Ear Infirmary there have been only four cases in ninety-one thousand eye patients. It is said to be particularly rare when, as in this case, it is unassociated with pemphigus of the skin. This patient was first seen in the early part of last August. He was sixty-eight years of age, and until recently had been employed running a circular saw in a planing mill. His health has always been good. No specific or skin disease. During the past ten weeks his eyes have been red. There has been a slight discharge. The conjunctiva of the lower lid and of the lower half of the eyeball of the right eye was red and slightly thickened, and on it were several very shallow denuded areas, the edges of which were in several places loosened or separated from the underlying tissue. The conjunctiva appeared shrunken and the cul-de-sac was shallow. There was a scant muco-purulent secretion. There was a similar but less extensive condition in the left eye. Vision in the right eye was $\frac{6}{10}$; in the left $\frac{6}{20}$, the impairment being due to a commencing opacity in the lens and a central senile choroiditis. The mucous membrane of the mouth and nose was normal. On the posterior wall of the pharynx there was about the same appearance as on the conjunctiva, and scattered

over its surface were a few small, very thin-walled vesicles. The patient had noticed a slight soreness of the throat some time after the eyes became red, and had had some treatment for it by his family physician. For three or four weeks after his first visit the conjunctival disease gradually spread in both eyes, until about all of the bulbar conjunctiva of the right eye was affected. Since then it has seemed to remain about stationary. A few weeks ago a small vesicle appeared on the right cornea. There have been no others in that situation, but two or three were seen on the conjunctiva. Treatment seems to be of little avail in this disease. Applications of weak solution of nitrate of silver and lead ointment relieved the discharge somewhat and, following the teaching of the dermatologists, arsenic is given internally.

Dr. E. S. THOMSON presented a patient with **pallor of the optic nerves, of obscure origin.**

The patient, an intelligent man, had come for treatment of a converging squint. He had not noticed any peculiarity about his vision. The squinting eye was amblyopic, but the vision of the fixing eye was found to be $\frac{20}{30}$. The pallor of the disks was extreme. The fields were contracted.

Dr. LINN EMERSON showed a patient with **perforation of the lens by a piece of steel.**

The lens had been removed by scleral incision. There was partial clearness of the lens and a resulting vision of $\frac{20}{70}$ after seven months. The patient was first seen on April 26th. Four days previously he had been struck with a piece of steel in the left eye. There were a corneal scar, anterior synechia, and marked opacity of the lens. The foreign body could be seen floating in the vitreous, just behind the lens, to the lower and inner side. When the magnet was brought close to the eye by direct ophthalmoscopy, the piece of steel could be seen to leave the pupillary area and disappear behind the iris. On removal of the magnet, it reappeared in its former location, and seemed to be held in suspension by exudate. A scleral incision was made 1.5*mm* from the corneo-scleral margin, on its lower and inner side, and the steel was easily removed with the Johnson magnet. The piece of steel was shown to the Section. When last examined, the patient's vision was $\frac{20}{70}+$.

Dr. RALPH OPDYKE showed a patient with **gunshot wound involving the orbit and eyeball.**

The patient, a young colored woman, was shot eight years ago at close range, the thirty-two-calibre bullet entering the left temporal region, penetrating the orbital fossa and presumably cutting the optic nerve—its further course being unknown. There is now phthisis bulbi, no p. l., dislocated cataractous lens, detachment of retina down and in.

Dr. T. R. CHAMBERS presented a patient with what he called **a travelling lens.**

Patient had had a blow in the left eye with a fist, four years ago, and was in the hospital. An operation was suggested and declined. Subsequently, Dr. Chambers suggested again that the eyes be operated upon. When the patient was placed on the table, the lens was found to have disappeared from the anterior chamber and to be in the vitreous. In the upright position, the lens reappears in the anterior chamber. There are markings on the posterior surface of the cornea, presumably from pressure of the travelling lens. The vision is $\frac{20}{100}$ with — 2.

Dr. J. E. WEEKS showed a woman aged fifty who, twenty years ago, began to have a drooping of the right upper lid. Then the left upper lid began to droop, and with those symptoms there was progressive limitation of the movements of the eye. Mr. Stanford Morton of the Moorfields Hospital, London, put in silver wire twelve years ago, with excellent effect. There is ophthalmoplegia externa. The good effect of the silver wire began to diminish five years ago. The skiagraph of Dr. Dixon, showing the position of the silver wire excellently, was passed around.

Dr. MARTIN COHEN showed a case of incised wound of the entire width of the cornea, extending about *2mm* into the sclera, causing intraocular hemorrhage, with obliteration of the anterior chamber, with iris adherent to the wound. The iris was replaced, but became ruptured twice. The interesting feature is the adherence of uveal pigment to the anterior capsule of the lens.

Dr. F. C. CLARK of Columbus, O., addressed the Section upon the Smith operation for extraction of cataract in the capsule: published in full in the preceding number.

In the discussion of Dr. Sherman's case, Dr. L. DUNCAN BULKLEY said that he had come to the meeting *first of all* to see the case, and, secondly, to mention a case of his own which illustrated the immense quantities of arsenic which were sometimes taken in this disease. His patient was a lady who had the vesicles in the mouth and vagina, and a few on the body. The sight was lost in the right eye and pemphigus had appeared in the left. He saw the patient only occasionally, and he had put her, in 1903, on arsenic, $\frac{1}{30}$ grain of the arseniate of soda tablets one three times a day, increasing until she had $\frac{1}{4}$ grain a day. In April the vision was greatly improved, the left eye being clear and the right somewhat hazy. At that time, she had taken altogether ten thousand tablets. The diagnosis of Dr. Sherman's case was undoubted.

Dr. WEEKS said that he had seen it stated that optic-nerve atrophy sometimes results from the prolonged use of arsenic, and asked Dr. Bulkley if that was his experience. Dr. Bulkley replied in the negative. Dr. FRIDENBERG asked if this case was now in the position in which it had been for a long time, or whether it showed the characteristic bullæ at any time. He spoke of the poisonous effect of atoxyl, which was a preparation of arsenic. Dr. MARPLE mentioned a case which he had reported in which there were blisters of the conjunctiva. Dr. LAMBERT had seen a case of septic pemphigus in which the eyes, lids, and surrounding skin were covered with bullæ. The condition followed an operation on the antrum.

In discussing Dr. Thomson's case, Dr. KOLLER spoke of two cases of young people he had seen in which there was hemiplegia and hemiparesis, of prenatal origin. There must have been a cerebral lesion. The disks were very white. The fields were hemiopic, the vision good. Dr. GUTTMAN had seen two cases in children where there was apparently optic-nerve atrophy after spinal meningitis. The sight was gone. Dr. FRIDENBERG thought there must be a toxic element in these cases. He had seen patients with alcoholic posioning where there was neuritis and subsequent paper-white pallor of the disks, with a vision of $\frac{1}{10}$. The case was also discussed by Drs. WOLFF, COBURN, and THOMSON.

Dr. GRUENING asked if Dr. Clark would now do the Smith operation on his own patients. Dr. Clark said that he certainly

hoped to. He intended to use it entirely if he could get the proper assistance, and if his success, as he hoped it would, would warrant it.

A vote of thanks to Dr. Clark was proposed and seconded, and carried unanimously.

MEETING OF MONDAY, DECEMBER 20, 1909. DR. W. E. LAMBERT, PRESIDENT, IN THE CHAIR.

Dr. ARNOLD KNAPP presented a case of **blindness after an iridectomy for glaucoma.**

The patient is a man sixty-six years of age, who was seen for the first time on August 18th, 1909, with the symptoms of acute inflammatory glaucoma. The vision in the right eye was $\frac{1}{200}$, in the left m.h. Tension very much increased in both eyes. He had suffered from prodromal glaucomatous attacks in the right eye for one year, and a gradual contraction of the nasal field in the left eye.

He was admitted to the hospital and prepared for operation by eserin, leeches, and cathartics. The tension was reduced and the vision in the right eye was $\frac{6}{6}$; field normal. In the left eye it equalled $\frac{20}{200}$. The field was contracted to an oval in the temporal half of the field, as is shown by the chart. Iridectomy was performed in both eyes under ether, without any accident. At the first dressing the patient claimed that he could not see with the left eye. The condition remained unchanged, though the tension in both eyes was reduced and the healing undisturbed. At present the right eye sees $\frac{6}{30}$; the field is slightly contracted nasally and below. In the left eye there is faint perception of light. Ophthalmoscopic examination shows optic atrophy in both eyes, more marked in the left eye. There is no cup. The arteries show variations in calibre, sometimes hardly visible; also white sheaths. In the left eye it seems as if the retinal artery was obliterated as it emerges before bifurcation at the disk.

The case is of interest because the sight in the left eye was lost apparently through no fault of the operation or treatment. I think it is but another example of the interdependence of glaucoma and arteriosclerosis, and that the already narrowed blood-vessel in the left eye, through some nervous or other

unknown influence, became closed for a sufficient length of time to cause permanent loss of sight.

Dr. LINN EMERSON regretted that he could not show his patient with **sub-conjunctival dislocation of the lens**, as the patient had refused to appear. The dislocation was hidden by the upper lid and was caused by a severe injury from a coal wagon.

Dr. F. W. SHINE presented a case of **spring catarrh, treated with radium.**

The patient had suffered for ten years with itching and burning of the eyes and excessive lachrymation, accompanied by the formation of mucoid, ropy material. The condition was worse in summer, although the symptoms were also pronounced on a cold winter's day. The examination showed a typical vernal catarrh. The right eye was more markedly affected. Treatment began under Dr. Abbe on May 27, 1907. A tube of pure radium bromide 60 *mg.* (strength 2,000,000) applied directly to the lid. It was contained in a small glass tube and wrapped in guttapercha tissue. The application lasted two minutes. Four applications five minutes each were made in June and four in July. The symptoms were much less troublesome during the summer. The applications were continued through the winter and into the following summer occasionally. In November, 1908, the lid appeared smooth. The following June one or two elevations appeared at the outer portion of the tarsus and an application was made, and another in the following October (1909). The condition was now very much better—in fact, almost normal.

Dr. L. MIAL presented a patient with **Parinaud's conjunctivitis,** which he had seen first last summer and which had been treated with a variety of remedies and was now nearly well.

Dr. E. S. THOMSON presented a report of two cases of **retinal phlebitis following influenza.**

These cases have almost all of them a widespread arteriosclerosis as their basis; they occur more frequently in advanced age and have a bad prognosis. A few cases are reported where arteriosclerosis could not be demonstrated, and a few others where the condition followed acute febrile conditions. My two cases followed severe attacks of influenza, of the variety which is known to lead at times to phlebitis and thrombosis

elsewhere (high fever and marked depression), and involved only the inferior branches in one case, while in the other the superior branches were also somewhat affected. Both cases were of a relatively mild type.

CASE 1.—Mr. Y., 48, consulted me in May, 1899, for the correction of his refractive error—a myopia of 4D. His vision was $\frac{20}{20}$ in each eye, with the correction. There were no evidences of choroidal disease, and the fundi were normal. He lived quietly and methodically, and was apparently in perfect health. He came to me about once a year after this, for slight changes in his lenses. I saw him in July, 1908, and made a few changes in his formula, and then did not see him until August, 1909, when he told me that he had had in August, 1908, a sharp attack of grippe with high fever followed by pneumonia. After his recovery he went to Berlin, and while there, about one month later, the vision in the left eye became slightly hazy. He consulted Dr. Hirschberg, who told him that he had "disease of the vein," and that it was necessary for him to be very careful in his mode of life. He gave him some general directions and prescribed iodide of soda in ten-grain doses, three times a day. He was under observation until February, when he was considered almost well. There was no appreciable reduction of his vision.

In March, 1909, being then fifty years old, he had another attack of grippe, and on his recovery noticed that his vision was somewhat reduced. It must have been about $\frac{20}{40}$, as nearly as he could tell. At this time he was told that he had a slight effusion of blood, which probably came from arteriosclerosis, although beyond the urinalysis and heart examination this question seems not to have been very thoroughly investigated. I saw him August 31st. At this time, there was a large patch of retino-vascular change to the inferotemporal side of the nerve, and occupying an area some six or eight times as large as the optic disk. The two venous trunks were enormously dilated and tortuous, and the arteries were much reduced in size, though not enough to lead to the supposition that they were obliterated. The retina was opaque and whitish in the affected area, and there were numerous small extravasations of blood through the area, as well as for some little distance beyond it. The vision was $\frac{20}{40}+$.

On account of the fact that the hemorrhages were so slight, as well as from the history of the onset, I believed that the case was one of phlebitis following influenza, and set about having a careful examination made to exclude arteriosclerosis. This was unfortunately interrupted by a fresh

attack of pneumonia, from which he died September 12th; but so far as his general physician, Dr. E. G. Zabriskie, had gone, he found no evidences of vascular change, and I do not myself believe that any marked amount of arteriosclerosis existed. My prognosis to him was guardedly favorable.

CASE 2.—Mr. W., 39, consulted me September 28, 1909. In May, 1908, he had had a sharp attack of influenza, with high temperature and great prostration, part of the time being unconscious. About two or three weeks after his recovery the right eye had become slightly blurred. He consulted a local oculist and was treated for nearly a year, presumably with mercury and iodides. At the time I first saw him, the corrected vision was $\frac{20}{40}$, and on my examination October 9th the vision was $\frac{20}{30}$. The vision had at first been reduced to about $\frac{20}{80}$. The opthalmoscopic picture was similar to that of the first case, but not so severe, and was entirely lacking in hemorrhages. A spot of haze extended from the lower part of the disk, downward along the course of the inferior branches of the vein, for the distance of about two disk diameters. The veins were much dilated and the arteries much reduced in size, but not obliterated. Two superior veins were also somewhat dilated, and the disk was distinctly redder than that of the opposite eye. Through the kindness and skill of Dr. Alfred Braun I am able to show you a very accurate picture of the condition.

The absence of hemorrhages in this case was rather remarkable, but it is possible that during the year that had elapsed some small hemorrhages might have occurred and have become absorbed without leaving any traces.

A careful physical examination by his general physician, Dr. J. B. Zabriskie, failed to show any signs of arteriosclerosis. The heart sounds were normal, blood pressure 135, urinalysis negative, and no evidences in the peripheral circulation nor any conditions in the general health of any unfavorable significance. In fact, his general health seemed in every way good. As far as I am able to ascertain, the condition has changed but little since its onset, and my own opinion is that if he can live so as to avoid hemorrhages or other complications, he may in time recover. He is taking ten-grain doses of iodide of potassium three times a day, and is on a definite regimen of diet, etc. He is under the care of his general physician, who is using every means to increase his nutrition, and to keep the blood pressure from rising.

In a very cursory examination of the literature of the subject, I have been able to find four similar cases (R. L. O. H., Ref. for 1904-6, page 515); Coates reports a case, No. 6, in a man of 21, with thrombosis of the left temporal vein. "The

onset occurring probably during an attack of influenza, a fortnight before." This eye became rapidly glaucomatous and finally, after other means of treatment had failed, was enucleated. Coates has reported two other cases following influenza, and he also quotes a case of Wurdemann's in which phlebitis followed an attack of mumps. Phlebitis in influenza is not at all rare, and, as a rule, the more severe the intoxication the more likelihood there is of phlebitis or a thrombosis.

Dr. ARNOLD KNAPP presented a specimen of a case of **subacute panophthalmitis.**

This is the eye of a baby six months of age. After an illness, which presumably was broncho-pneumonia and meningitis, the right eye became slightly red, and upon going to the dispensary on the fifteenth of November we found evidences of an exudative choroiditis. The eye was white, and apparently not causing any discomfort. About ten days later the child became sick with fever. The eyelids swelled and were closed for a number of days. When the lids were again opened a curious mass was found directly above the cornea, and this brought the mother again to the dispensary.

Upon examination we found directly over the cornea a perforation of the sclera, with a presenting fungating mass. The pupil was drawn upward; the iris looked normal. The surrounding parts of the eye were not particularly inflamed. The diagnosis rested between subacute panophthalmitis, glioma of the retina, or tuberculosis. The eye was removed and section verified the diagnosis of panophthalmitis.

The vitreous is occupied by an abscess. There is a marked infiltration of the choroid, and the retina is partly detached. At a region of just about the junction of the cornea and sclera there is a perforation through which the pus from the vitreous is escaping, and this opening is surrounded by a mass of granulation tissue. From the clinical history it seems probable that an acute infection was superimposed on the metastatic choroiditis.

Dr. MARTIN COHEN read a paper entitled "**Report on the Noguchi system of the Wasserman reaction in 130 cases of suspected ocular syphilis,**" which will be found in full in this number of the ARCHIVES (page 93).

Dr. E. S. THOMSON showed a patient with **retro-bulba**

neuritis, who had been treated by operation upon the ethmoid cells and sphenoidal sinus, done by Dr. Harmon Smith. There was still considerable haze of the disks, but vision was greatly improved, and continues to improve.

Dr. T. A. CHAMBERS made a further report on a case of "**travelling lens**" which he had previously reported. In attempting to remove the lens with the patient in the ordinary position for operation, the lens retreated into the vitreous, and when the patient sat up it reappeared in the anterior chamber. Finally, he put the patient in such a position that it came into the anterior chamber and remained. He then fixed it with a bident, and extracted it.

Dr. LINN EMERSON showed a Bardsley needle-holder with a modification of his own which, he claimed, had the advantage of never breaking a needle.

In the discussion of Dr. Knapp's case of blindness after iridectomy, Prof. SCHIRMER thought that Dr. Knapp's explanation of the cause was very likely the proper one. He had seen a case where, after operation, the vision was reduced from normal to $\frac{1}{10}$. He thought the vascular changes were very likely responsible for the condition. Dr. KOLLER thought that these cases might be cases of optic atrophy, with a glaucomatous attack supervening. Dr. GRUENING was of opinion that Dr. Knapp had given us a strong working theory as to the cause, and he was in favor of it. Dr. Knapp said that he had not heard that an iridectomy had a deleterious effect in cases of optic atrophy. Moreover, in his case, vision had been improved in the right eye, and vanished in the left, although both eyes were operated upon.

In discussing Dr. Shine's case, Dr. WOOTTON remarked that, whether the cure is permanent or not, the case was very interesting. He referred to a case of his own which had been sent to him by Dr. Cohen for operation by the combined operation of Heisrath, which had been done for trachoma. The palpebral conjunctiva was carefully removed to the limbus and the symptoms vanished for four months. Then there occurred some itching, which, however, has disappeared again; but, as it is now cold weather, this is not conclusive. Dr. Wootton showed under the microscope a beautiful slide made from tissue which he had excised and which was, as far as he knew,

the only specimen existing, taken from a living subject. Dr. Shine disclaimed credit for the cure, which, he said, should go to Dr. Abbe.

In discussing Dr. Thomson's case, Dr. HARMON SMITH said that a less radical operation might possibly have been sufficient and prophesied as satisfactory a result by depletion, although he could not, of course, say whether this would have been enough. In the case under discussion, the middle turbinate was removed and the sphenoid sinus and ethmoid cells were cleaned out. There was no pus. The sphenoid was apparently normal, but the ethmoid cells were softened. When there is pressure and pus is present, an operation should undoubtedly be done, but when there is not, as in this case, it is a question whether a lesser operation would not be sufficient.

In the discussion of Dr. Knapp's case of subacute panophthalmitis, Dr. GRUENING said that he had seen two eyes similarly diseased. There had been purulent choroiditis and afterwards the sclera had thinned and abscesses had formed. The eyes were removed.

In discussing the instrument presented by Dr. Emerson, Dr. GRUENING said that, in his somewhat lengthy experience, he had never broken a needle, although he had always used an ordinary needle-holder. Referring to Dr. Chambers's case, he pointed out that the bident was an instrument brought into use by the late Dr. Agnew.

Dr. Cohen's paper was discussed by Dr. ARNOLD KNAPP, who said:

"I have been very much interested in following this investigation of Dr. Cohen, as the clinical appearance and course of most of the cases were familiar to me. I want to first of all emphasize the painstaking accuracy of these observations; that they all were controlled by Dr. Noguchi insures reliability, which is so important in any form of laboratory research.

"In looking over the series one could not but be struck by the frequency of a positive reaction in cases of interstitial keratitis. In these the blood of the parent usually reacted to the test. One case was particularly instructive—that of a young woman of twenty-two, where the clinical appearance of the corneal lesion was not suggestive. She did not react to tuberculin, but the Wasserman test was positive, and the case

belonged to that group where the keratitis was the only symptom of inherited syphilis. On the other hand, we had a patient, a boy eight years of age, with pronounced interstitial keratitis and tibial periostitis, in whom both lesions responded readily to mercury and iodide of potash, though the serum test was negative. In certain cases of interstitial keratitis we have been encouraged by the positive Wasserman reaction to follow out anti-syphilitic treatment in a much more active manner than usual, with excellent results, a point which I hope Dr. Brouner will bring out. The effect of mercurial treatment on the Wasserman reaction is most interesting. Somewhat contrary to the usual is the case of one patient under my observation who has received seventy-six mercurial injections in the course of one year, with a complete arrest of a choroiditic process; the serum reaction, however, was found.positive a few weeks ago.

"There are, of course, a great many features of this reaction on which we require more information. Anything which will help us in the diagnosis of syphilitic lesions must furnish a very profitable field for investigation, and I trust that Dr. Cohen will persevere in the study of this serum reaction."

Dr. BROUNER said: "We have yet to learn, first, as to the value of the Wasserman reaction (a) to us in our work, and (b) to our intelligent patients. I am still on the fence with regard to the Noguchi-Wasserman reaction. An active syphilis service does not tend to establish us in the faith. We should not allow the laboratory to make our diagnosis for us. There is much yet to be learned as to the active treatment of syphilis. Dr. Brouner spoke of the intramuscular injections as the best method of controlling the disease. There are small complications, such as swellings, painful nodes, small abscesses, and occasionally embolism. The results are best when we give one-half grain of the salicylate, next three-fourths grain to one grain, then one and one-half grains, seeing the patient every five days, and gradually getting the dosage up to two grains. We must also crowd the iodide of potash, starting with thirty or forty drops, and rapidly running up to ninety or more. Dr. Brouner preferred the gluteal regions for the injections. Dr. C. W. CUTLER referred to two cases he had seen, one a man who had had syphilis some years ago and been well treated.

He saw him with iritis. The Wasserman was negative. He got well under anti-rheumatic treatment. Without the Wasserman, he would undoubtedly have had anti-specific treatment. The second case was one of interstitial keratitis in a patient aged twenty-one. He had been given anti-specific treatment and after several months the eye became quiet. Two years after, the vision was $\frac{20}{100}$. The cornea was very cloudy and the patient came to inquire about the other eye. The Wasserman was positive, showing, he thought, that the treatment should be kept up months or years after the cure of the first eye in interstitial keratitis. Dr. GRUENING said that the second eye has become affected in a number of cases in which very vigorous treatment was being given for the first eye. Dr. MARPLE had seen two cases of iritis and one of exudative choroiditis in which the Wasserman was negative, but anti-syphilitic treatment was followed by successful result. Dr. J. H. WOODWARD referred to a case which he had seen of neuro-retinitis in one eye, the other eye showing localized endarteritis. In this case, no anti-syphilitic treatment had been given previously. The Wasserman was negative. Nevertheless, the case got well under anti-syphilitic treatment. Dr. Cohen remarked that after two months' treatment in most cases the Wasserman was negative. Dr. A. E. DAVIS inquired whether the result was affected by the fact of the case being primary or congenital.

Dr. H. W. WOOTTON was elected chairman and Dr. E. B. COBURN, secretary for the ensuing year.

REPORT OF THE PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

By Mr. C. DEVEREUX MARSHALL.

An ordinary meeting of the Society was held in the Medical Society's Rooms, on Thursday, December 9, 1909, Mr. W. H. H. Jessop, Vice-President, in the chair.

Mr. S. Stephanson showed a case of **tubercle of the choroid,** shown originally on October 17, 1907.

Mr. Bishop Harman showed three cases: (1) **Abnormal congenital pigmentation of one eye.** (2) **Retinal nævus.** (3) The **diaphragm test;** finished **models of the instrument** and its accessories.

Dr. Rayner D. Batten showed an **orbital frame for eyeglasses,** and its adaption for a **ptosis prop.**

Mr. A. H. Payan Dawnay: **Opacities of cornea of unusual character.**

Mr. Hepburn exhibited a case of **hemorrhages of the macula.**

Before the papers of the evening were read, the chairman alluded in very sympathetic terms to the recent demise of last year's President, Mr. R. Marcus Gunn. He alluded to the large number of contributions which the late distinguished member had contributed, all marked by great accuracy and care in observation. Mr. Jessop also dwelt affectionately on Mr. Gunn's personal qualities, and his faculty of endearing himself to all with whom he was brought in contact. It was resolved to send a letter of condolence to Mrs. Gunn and family.

Mr. Doyne read a paper describing **a form of conjunctivitis in which the Meibomian glands were affected with staphylo-**

coccus aureus. This, he described, as giving rise to definite acute attacks, especially after exposure of the eyes. He also pointed out that many cases described as chronic conjunctivitis were due to this cause, as well as many other cases of marginal blepharitis.

Mr. DOYNE showed a fresh member of a family suffering from **guttate choroiditis,** which he described some years ago, and gave a brief description of the condition.

He also read a brief note on a condition that he described as myopic degeneration of the lens and had pointed out the condition to the Society in 1886, when he showed a patient suffering from this form of nuclear degeneration.

He also read notes of a form of iritis which he described as **guttate iritis,** occurring in elderly and gouty persons. It presented the appearance of one or more warts at the pupillary margin of the iris, which came on without any noticeable inflammatory appearances, and sometimes disappeared without giving rise to any inflammation. At other times inflammatory symptoms appeared and adhesions to the lens took place.

Mr. HARMAN, in discussing the first paper, said that seven years ago he made bacterial cultures from the normal healthy eyes of school children by passing a platinum loop along the mouths of the Meibomian glands, and in every case he got enormous numbers of the staphylococcus aureus and albus.

Mr. DOYNE, in reply, asked members to look out for such cases and endeavor to ascertain the exciting cause, but for five days nothing but water should be used in the eyes. Mr. Doyne's other papers were discussed by Mr. Nettleship, Mr. Harrison Butler, and Mr. J. E. Adams.

Mr. M. S. MAYOU read a communication entitled **A congenital sarcoma of the orbit.** He pointed out that the interest of this case lay partly in its extreme rarity and partly because of its clinical resemblance to proliferating cysts.

CASE. A. P., male, *æt.* twelve days, was admitted to the Central London Ophthalmic Hospital on March 13, 1908. No eye on the left side had been seen since birth. The patient was a strong, healthy infant and presented no other congenital abnormalities. The right eye was to all appearance normal. Filling the left orbit and protruding from

between the lids, which could not be closed, was a red, slightly œdematous mass. It was irregular on the surface and covered by the epithelium of the conjunctiva, except where it was exposed in the palpebral aperture, where it had started to ulcerate. There was no enlargement of the pre-auricular gland and no eye could be seen. On March 13th, the orbital contents were eviscerated, leaving the eyelids in position. The child made a good recovery, the wound granulating and healing over with epithelium.

On June 16, 1908, the child returned to the Hospital, with a large recurrent mass filling the entire orbit and bulging forward the upper lid and protruding between them. Complete evisceration of the orbit was performed, the child making a good recovery. After the operation, the patient attended the Hospital for four weeks, but since then has been lost sight of.

The contents of the orbit submitted for examination was hardened in formol. The eye, which was embedded in the upper part of the tumor, had been cut open and the sclerotic divided posteriorly in several places. It appeared about the normal size, the cornea, anterior chamber, iris, ciliary body, and lens being normal. The condition of the posterior part of the globe could not be made out but there was no evidence of any cystic protrusion therefrom. No definite orbital structure could be recognized, the whole being involved in the tumor. It was composed of medium-sized spindle cells. The walls of the vessels within the tumor were composed for the most part of its cells. Hemorrhages had taken place into the growth in many situations. The recurrent tumor, examined microscopically, exhibited the same characteristics as the primary tumor, except that the hemorrhages were not so numerous.

The typical microscopical appearances, together with the recurrence of the disease, led him to believe it to be a spindle-celled sarcoma of the orbit developing during intra-uterine life. He had been able to discover the records of two similar cases which exhibited much the same characteristics.

Messrs. A. P. L. Wells and M. S. Mayou read a paper on **lymphosarcoma of the lachrymal gland.**

They pointed out the want of proper classification of tumors of the lachrymal gland. They divided them into those derived from the epithelial, the connective, and the lymphoid tissues. The case which they brought before the Society was one of the last type.

Case. M. A., female, *æt.* 66, was admitted to the Central London Ophthalmic Hospital on January 14, 1909. She

was a strong, healthy woman, no anæmia, no glandular enlargement. There was nothing in her previous history of note.

She complained of a swelling which she had noticed for a considerable time at the upper and outer part of the left orbit in the situation of the orbital portion of the lachrymal gland. The surface of the swelling was somewhat irregular and about the size of a large walnut. It was soft, almost fluctuating, rounded in outline, and moderately freely movable.

From January to April, while under observation, it gradually increased in size, and on admission into the Hospital on April 8th there was, in addition to the above symptoms, displacement of the eye downwards, and the tumor seemed to have become slightly attached to the margin of the orbit, which seemed thickened. There was no enlargement of the salivary or lymphatic glands and no signs of dissemination.

On April 9th, an incision was made over the tumor, which was found to be encapsuled, except in one situation, where it was ruptured. After removal it was seen to be about the size of a walnut and surrounded by a capsule which was evidently formed from the original capsule of the gland. This was composed of fibrous tissue, and was much thicker in some portions than in others. In some situations it was much infiltrated by the cells of the growth, while in one the tumor had penetrated it.

The tumor consisted of round cells about the size and shape of an ordinary lymphocyte, and showed no signs of degeneration, although at some places the cells were more darkly stained and packed closer together than at others. Mitosis was not marked in the cells.

The vessels in the tumor were of two kinds. Some, which were evidently new, were composed of a single layer of endothelium, or, in some situations, of the cells of the tumor itself; the others, which were generally situated in the remains of the trabeculæ of the gland and were probably the original vessels supplying it, had normal coats which were somewhat thickened.

In the literature they had been able to find eight similar cases which exhibited much the same characteristics. The points about the tumors were the late age at which they occurred—all the patients being over thirty-eight; their slowness of growth—3–4 years,—and the absence of glandular enlargement. They also pointed out that these tumors should be differentiated from orbital sarcoma invading the gland, and from lymphoid growths such as are found in chloroma and lymphadenoma.

SYSTEMATIC REPORT ON THE PROGRESS OF OPHTHALMOLOGY IN THE THIRD AND FOURTH QUARTERS OF THE YEAR 1908.

By Dr. G. ABELSDORFF, in Berlin; Prof. St. BERNHEIMER, in Innsbruck; Dr. O. BRECHT, Prof. R. GREEFF, Prof. C. HORSTMANN, and Dr. R. SCHWEIGGER, in Berlin; with the assistance of Prof. A. ALLING, New Haven; Prof. E. BERGER, Paris; Prof. CIRINCIONE, Genoa; Dr. DALÉN, Stockholm; Prof. HIRSCHMANN, Charcow; Dr. J. JITTA, Amsterdam; Mr. C. DEVEREUX MARSHALL, London; Dr. H. MEYER, Brandenburg; Dr. P. VON MITTELSTÄDT, Metz; Dr. H. SCHULZ, Berlin; Prof. DA GAMA PINTO, Lisbon; and others.

Translated by Dr. MATTHIAS LANCKTON FOSTER.

(*Continued from page 92*).

IX.—LACHRYMAL ORGANS.

536. GOERLITZ, MARTIN. **Dacryoadenitis and dacryops.** *Klinische Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 406.

537. WEIGELIN, S. **Contribution to the pathology of the lachrymal gland.** *Ibid.*, xlvi., ii., p. 255.

538. TRUC, H. and PERETZ, H. **Histologic examination of the orbital lachrymal gland in an old case of trachoma.** *Revue générale d'ophtalmologie*, xxvii., p. 246.

539. SCHIRMER, O. **Dacryocystorhinostomy according to Toti.** *Zeitschrift f. Augenheilkunde*, xx., vi., p. 541.

540. ZENTMAYER, W. **Imperforation of the lachrymo-nasal duct in the new-born and its clinical manifestations.** *Jour. Amer. Med. Assoc.*, July 18, 1908.

GOERLITZ (536, **Dacryoadenitis and dacryops**) describes two rare cases of disease of the lachrymal gland. The first was one of bilateral dacryoadenitis which was probably caused by endogenous infection from an influenza that had run its course three weeks before. The symptoms gradually retrogressed under the influence of potassic iodid. In the second case a

cyst formed in the region of the lachrymal gland, a so-called dacryops, as the result of a sword-cut over the left eye. Goerlitz thinks that the genesis can be traced from the pathologic examination of the extirpated cyst. Its inner coat was composed of a double layer of cylindric epithelium. From the histological peculiarities he believes that he can assume that it was a retention cyst in which the lachrymal gland was involved, not primarily but secondarily through retention of the secretion. He thinks that a part of the excretory ducts were occluded cicatricially and then dilated gradually by the continuous secretion. The increasing pressure within then produced the symptoms perceptible with the microscope, changes of the epithelium, and solutions of continuity of the inner coat through stretching of the walls. The adenoid tissue of the gland was very little developed; this he considers a sign of degeneration in consequence of the retention of secretion.

KNAPP.

WEIGELIN (537, **Contribution to the pathology of the lachrymal gland**) removed a tumor of the lachrymal gland from a man fifty years old. Histologically the tumor showed a fibrous capsule, intact glandular tissue, with irregular, very cellular tumor-processes, and an intermediate tissue consisting of typical cartilage. The tumor tissue is difficult to interpret; it consisted of densely packed epithelioid cells which ran in bands through the cartilage tissue and appeared in part to arise from the gland tissue. The tumor cells formed compact masses everywhere. Weigelin thinks that the tumor was of connective-tissue origin, a chondrosarcoma of the lachrymal gland. KNAPP.

TRUC and PERETZ (538, **Histologic examination of the orbital lachrymal gland in an old case of trachoma**) describe a case of great lachrymation in a patient thirty-two years old suffering from trachoma, which ceased after extirpation of the lachrymal gland. The histological examination of the extirpated gland showed diffuse, peri-acinous, and circumscribed areas of infiltration with pus cells and new formation of connective tissue. The authors ascribe the lachrymation to a congestion of the lachrymal gland induced by the entrance into it of the trachoma. BERGER.

As a substitute for the extirpation of the lachrymal sac,

SCHIRMER (539, **Dacryocystorhinostomy according to Toti**) recommends the operation devised by Toti, a connection of the lachrymal sac with the nose. After the usual incision through the skin, the sac is dissected free from the bone up to the posterior lachrymal crest, together with the periosteum, a piece is taken from the now empty groove of the lachrymal sac and the nasal wall, a tampon passed through the wound in the bone into the nose, the sac replaced and closed. Usually the passage is made directly into the nose through the lower portion of the lachrymal bone, otherwise it must go through the ethmoid. Schirmer has performed this operation in six cases and observed them for a considerable time. The lachrymal catarrh got well and the passage remained open.

ZENTMAYER (540, **Imperforation of the lachrymo-nasal duct in the new-born and its clinical manifestations**) considers dacryo-cystitis in childhood to be due to obstruction of the lachrymo-nasal duct from imperforation of the septum between the duct and the nasal chambers. If simple pressure over the sac does not rupture this membrane and give permanent relief, the author would probe at once. These cases, however, usually recover spontaneously. ALLING.

X.—ORBITS AND ACCESSORY SINUSES.

541. BARTELS, MARTIN. **Implantation of fat in Tenon's capsule to produce a good stump after enucleation of the eyeball.** *Bericht ueber die 35 Versamml. der ophthalm. Gesellsch.*, Heidelberg, 1908.

542. KNAPP, A. **The surgical treatment of orbital complications in the diseases of the nasal accessory sinuses.** *Jour. Amer. Med. Assoc.*, July 25, 1908.

543. BULL, CHARLES STEDMAN. **Mixed streptococcus and pneumococcus infection of the orbit and the adjacent sinuses.** *Annals of Ophthalmol.*, Oct., 1908, and *Trans. Amer. Ophthalm. Soc.*, 1908.

544. FRANCIS, L. M., and GIBSON, J. A. **The sphenoidal sinus as a possible factor in the production of retrobulbar neuritis from an anatomical standpoint. Observations on sixty specimens.** *Oph. Rec.*, Dec., 1908.

545. KNAPP, ARNOLD. **Bilateral optic neuritis after ethmoiditis.** *Trans Amer. Ophthal. Soc.*, 1908.

546. SPASSKY, S. S. **Purulent tenonitis.** *Praktitschn. Wratsch*, 1908, No. 32.

547. PASCHEFF, C. **Calcified cysticercus of the orbit.** *Archives d'ophtalmologie*, xxviii., p. 518.

548. QUACKENBOS, A., and VERHOEFF, F. H. **Angioma of the orbit,**

with invasion of the globe along the ciliary nerves. *Annals of Ophthalmology*, Oct., 1908.

549. VAN DUYSE. **Chondro-myxo-perithelioma of the orbit.** *Société Belge d'ophtalmologie*, April 26, 1908.

550. MIZUO. **Demonstration of a teratoma orbitæ.** *Bericht ueber die 35 Versamml. der ophthalm. Gesellschaft*, Heidelberg, 1908.

551. DEMICHERI, L. **Pulsating exophthalmos from an intracranial hydatid cyst.** *Annales d'Oculistique*, cxl., p. 102.

552. DUNN, PERCY. **Traumatic enophthalmos.** *Lancet*, August 15, 1908.

In order to obtain a good stump after enucleation, BARTELS (541, **Implantation of fat in Tenon's capsule to produce a good stump after enucleation of the eyeball**) introduces a piece of fat taken from the patient's thigh into Tenon's capsule after the globe has been removed, and unites the capsule and conjunctiva over it. He has performed this operation in two cases and obtained good results. KNAPP.

KNAPP (542, **The surgical treatment of orbital complications in the diseases of the nasal accessory sinuses**), in chronic periosteal abscess due to sinus disease and in acute perforation which does not yield to other treatment, performs the following radical operation for draining and curetting the frontal, ethmoidal, and even sphenoidal sinuses. The anterior half of the middle turbinate having been previously removed, an incision is made along the upper orbital border and down along the inner wall and the side of the nose to the floor of the orbit. The periosteum being retracted, the lachrymal sac and orbital contents are detached and the pulley of the superior oblique is carefully freed from the trochlear fossa. The entire floor of the frontal sinus and the ethmoidal labyrinth can be removed with the curette after the nasal process of the superior maxillary, lachrymal bone, and os planum are resected. The external wound is left to heal without suturing. ALLING.

BULL (543, **Mixed streptococcus and pneumococcus infection of the orbit and adjacent sinuses**) has seen a number of cases of this form of infection and relates six of the most serious. He makes the following points: The attacks are insidious and vary in period of incubation. The symptoms are extremely violent in the sudden onset. The process seems to originate in many cases in the nasal sinuses. There is a rapid rise in

temperature, which persists until the pus is evacuated, hence a thorough search should be made for the purulent focus and careful outlook kept for new foci which are accompanied by a rapid rise of temperature. The patients are all young. In all these cases an incision was made into the orbit and pus evacuated and the sinuses were found involved.

ALLING.

FRANCIS and GIBSON (544, **The sphenoidal sinus as a possible etiological factor in the production of retrobulbar neuritis from an anatomical standpoint. Observations on sixty specimens**) found that in one-third of the cases the optic nerve or commissure was separated from the sphenoidal sinus by a bony wall of only one-fourth *mm* thickness and in two-thirds the wall was less than one-half *mm* thick. He thinks that the blood supply comes from the periosteum of adjacent cavities, thus offering an explanation of a route of infection. Diverticula were found in 17% and the opening of the sinus was nearer the roof than the floor in the majority of cases.

ALLING.

A woman of thirty, seen by KNAPP (545, **Bilateral optic neuritis after ethmoiditis**), developed blindness of the left eye six weeks after catching cold. The pupil was small, irresponsive to light, in a condition of hippus, light perception lacking. There was distinct optic neuritis measuring 2.5 D. of swelling. As pus was seen coming from the ethmoid region, the middle turbinated body was partially removed. Improvement began at once, first as a return of light perception, then hand movements, later gradual disappearance of the large central scotoma, and finally normal vision. Six weeks after beginning of blindness in the left eye, the right eye was similarly but less markedly affected. The intranasal condition was the same as on left side and treated similarly. The recovery was complete

ALLING.

SPASSKY (546, **Purulent tenonitis**) describes a case of tenonitis met with in the right eye of a girl fourteen years old which presented the following symptoms: venous stasis in the anterior segment of the eye, great chemosis, especially below, slight exophthalmos without limitation of movement, but with all movements of the eye associated with pain, particularly on looking downward, necrosis of the bulbar conjunctiva, and

denudation of the sclera just above the insertion of the inferior rectus where there was a discharge of thick pus. Optic neuritis. Vision at first 1, later 8. Gradual retrogression of all symptoms and return of vision to 1. The author ascribes the tenonitis in this case to metastasis from an abscess in the lobe of the right ear caused by piercing the lobe of the ear for earrings. HIRSCHMANN.

PASCHEFF (547, **Calcified cysticercus of the orbit**) extirpated a cyst of the orbit behind the right eye of a woman thirty-three years old, after enucleation of the eye, which was blind from optic atrophy and detachment of the retina. The cyst contained a hydropic and partially calcified cysticercus. In the membrane about the cysticercus there were numerous eosinophile cells and lymph follicles. BERGER.

QUACKENBOS and VERHOEFF (548, **Angioma of the orbit, with invasion of the globe along the ciliary nerves**) enucleated an eyeball with a tumor mass surrounding it. The tumor began in infancy with a few dilated vessels of the conjunctiva of the lower lid, and progressed with periods of quiescence until it involved the lids and orbit, producing marked exophthalmos and destruction of the eyeball by suppurative keratitis. The growth showed a marked tendency to extend along the nerve trunks, which in some instances were converted into cavernous spaces. ALLING.

VAN DUYSE (549, **Chondro-myxo-perithelioma of the orbit**) removed from the orbit of a man twenty-five years old, after Kroenlein's operation, a tumor which proved under the microscope to be a chondro-myxo-perithelioma springing from the periosteum. Recovery took place normally except for a neuroparalytic keratitis of the lower part of the cornea, which healed, leaving a slight opacity. BERGER.

MIZUO (550, **Demonstration of a teratoma orbitæ**) removed, from below the left eye of a child two months old, a tumor as large as a small fist, resembling a fœtus, reddish, covered with fine hairs, and attached to the deepest part of the orbit by a pedicle that resembled an umbilical cord. The operation was necessitated by the rapid growth of the tumor and the general bad condition of the child. In the teratoma the head, body, limbs, brain, sexual organs, throat, stomach, intestines, vertebral cartilages, and skin could be recognized. KNAPP.

DEMICHERI (551, **Pulsating exophthalmos from an intracranial hydatid cyst**) met with a hydatid cyst in the cranial cavity of a child five years old which pressed into the orbit and produced the symptoms of pulsating exophthalmos. When sixteen years old, the patient was operated on successfully, but a recurrence a year later made necessary another opening of the cyst and injections of formol. He has not been able to find in literature any other case in which a hydatid cyst caused the symptoms of pulsating exophthalmos. BERGER.

DUNN (552, **traumatic enophthalmos**). The author divides the cases in three classes, those due to the contraction of scar tissue in the orbit, those following fracture of the orbit, and finally those in which without apparent reason the eyeball falls into the orbit after a blow on the globe or orbit. Dunn cannot agree with Beer that enophthalmos is due to absorption of orbital cellular tissue and fat. Nor can Van Duyse's theory be accepted. He thinks it is due to a paralysis of the lenticular ganglion, the centre for the involuntary muscles of the eye, orbit, and lid. T. HARRISON BUTLER.

XI.—CONJUNCTIVA.

553. CABANNES, C. **Acquired serous cysts of the conjunctiva.** *Annales d'Oculistique*, cxl., p. 81.

554. AWERBACH, M. J. **Parinaud's conjunctivitis.** *Westn. Ophthalm.*, Jan., 1909.

555. LAZAREW, E. G. **A case of Parinaud's conjunctivitis.** *Ibid.*, Jan., 1909.

556. SCHOLTZ, K., and VERMES, L. **Exciters of conjunctival inflammations in 500 cases.** *Klin. Monatsbl. f. Augenheilk.*, xlvi., ii., p. 46.

557. MEYERHOF. **Etiology of the pseudo-membranous conjunctivitis met with in Egypt.** *Revue générale d'ophtalmologie*, xxviii., p. 97.

558. ROSENHAUCH, EDMUND. **Some influenza infections of the eye.** *Klinische Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 366.

559. ALT, A. **An epidemic of pneumococcus conjunctivitis. Remarks on acute conjunctivitis.** *Amer. Jour. of Ophthalmology*, Sept., 1908.

560. MCKEE, H. **Morax-Axenfeld conjunctivitis.** *Ophthalmology*, April, 1908.

561. PUSEY, BROWN. **Histological investigations of a case of blepharo-conjunctivitis caused by the diplobacillus of Morax-Axenfeld.** *Trans. Amer. Ophthalm. Soc.*, 1908.

562. GILBERT, W. **Treatment of ophthalmia neonatorum with cattle serum.** *Muenchener medizinische Wochenschrift*, No. 30, 1908.

563. JANULAITIS, V. **The tarsal follicles in trachoma.** *Inaug. Dissert.*, Berlin, 1908.

564. GRUETER, W. **A yellow, Gram-negative bacillus in a case of chronic trachoma.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 529.

565. GREEFF, R. **More concerning trachoma.** *Bericht ueber die* 35 *Versammlung der ophthalmologischen Gesellschaft*, Heidelberg, 1908.

566. MIJASCHITA, S. **The so-called trachoma bodies.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 626.

567. KUHNT. **The indications for the operative treatment of trachoma.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 462.

568. LAFON, CHARLES. **Epibulbar tuberculoma (tuberculous gumma of the bulbar conjunctiva).** *Annales d'Oculistique*, cxl., p. 108.

569. NATHANSON, A. N. **Abscess beneath the bulbar conjunctiva.** *Westn. Ophthalm.*, 1908, No. 4.

570. BARTELS. (1) **Tumor of the bulbar conjunctiva with follicles and mucous cysts (atypical vernal catarrh).** (2) **Manz's glands and their relation to the cysts.** *Zeitschrift f. Augenheilkunde*, xx., 3, p. 193.

571. PASCHEFF, C. **Plasma-cellular formations (plasmonen) of the conjunctiva and cornea.** *Archiv f. Ophthalm.*, lxviii., i., p. 114.

572. SCHREIBER, L. **Demonstration of a molluscum contagiosum of the lachrymal caruncle and a hyaline tumor of the plica semilunaris.** *Bericht ueber d.* 35 *Versamml. d. ophthalm. Gesellsch.*, Heidelberg, 1908.

573. ROY, J. N. **Large sarcoma of the bulbo-palpebral conjunctiva.** *Annales d'Oculistique*, cxl., p. 338.

574. GROSS, JULIUS. **Primary epibulbar melanosarcoma.** *Ophthalmic Record*, Oct., 1908.

575. FAITH, THOMAS. **Papilloma of the conjunctiva with report of a case successfully treated with the X-rays.** *Jour. of Ophthalmology and Oto-Laryngology*, April, 1908.

CABANNES (553, **Acquired serous cysts of the conjunctiva**) differentiates three forms of non-congenital serous cysts of the conjunctiva: (1) lymph cysts, met with usually in the bulbar conjunctiva; (2) gland cysts, which originate either from Krause's or Henle's glands, usually in the upper or lower retrotarsal fold; (3) cysts from inclusion, caused by traumatism. He describes one of each of these kinds of cysts that he has observed and studied anatomically. BERGER.

AWERBACH (554, **Parinaud's conjunctivitis**) reviews the literature of this disease and describes two typical cases seen by himself. One case was that of a girl, ten years old, of a tuberculous family. The bacillus xerosis was found in the conjunctival secretion. The pre-auricular gland was as large as a plum and contained much fluid, flocculent pus from which a pure

culture of pneumococcus was obtained. All tests for tuberculosis proved negative. Recovery was perfect after two months. The other case was that of a girl, eight years old, who presented similar symptoms in her right eye. Awerbach presents the following views, drawn from his observation and the literature. Infection from animals is very doubtful. Its infectiousness is very slight, but present, as indicated by the involvement of the glands and the fever. The disease seems to be one of early life. The diagnosis is certain from the symptom complex: the lymphadenitis is particularly characteristic. The bacteriologic examination gives no aid as yet to the diagnosis. The changes found in the pathological examinations, diffuse lymphoid infiltration, are present in every chronic inflammation. The necrotic areas of Verhoeff and Derby and the plasma cells found by Matis are of no special importance. The prognosis is always good. The treatment is mild and symptomatic. Large excrescences may be excised or cauterized. HIRSCHMANN.

In LAZAREW'S (555, **A case of Parinaud's conjunctivitis**) patient, a schoolgirl thirteen years old, the upper lid was swollen, especially in its lateral portion, its skin red, the bulbar conjunctiva in the palpebral opening pale; there were numerous large, reddish-yellow, closely placed granules in the tarsal conjunctiva, the transition folds, and the bulbar conjunctiva, with papillomata in the lateral part of the tarsal conjunctiva. No erosions of the epithelium were visible and the cornea was normal. The left parotid, the pre-auricular gland, four submaxillary glands, and the left cheek were swollen, the skin not reddened. General emaciation. The swelling of the lid had been noticed two weeks before, that of the pre-auricular gland five days later. All tests for tuberculosis proved negative. The histologic examination of excised pieces of the conjunctiva showed a diffuse infiltration, with lymphocytes and thickening of the epithelial covering of the papillomatous excrescences. Special cells were not found even after use of Unna-Pappenheim's elective stain. The patient made a perfect recovery after two months. HIRSCHMANN.

Among five hundred cases of conjunctival catarrh with secretion, SCHOLTZ and VERMES (556, **Exciters of conjunctival inflammations in 500 cases**) found the exciters to be diplo-

bacilli in 227, Koch-Weeks bacilli in 76, pneumococci in 23, streptococci in 6, gonococci in 9, Friedlaender's bacilli in 1, staphylococci and xerosis bacilli in 68, xerosis bacilli in 45, and a negative condition in 45. The microscopic examination of the secretion alone was made in most cases, cultures were made only when the results thus obtained were negative or uncertain.

KNAPP.

MEYERHOF (557, **Etiology of the pseudo-membranous conjunctivitis met with in Egypt**) saw 110 cases of pseudo-membranous conjunctivitis in Cairo. This disease appears most frequently in Egypt during the months of May and October. The pseudo-membranes were caused in 61 cases by the Koch-Weeks bacillus, in 32 cases by Neisser's gonococcus, in 7 cases by streptococci, and in 5 cases by Loeffler's diphtheria bacillus. The severest corneal complications were produced by streptococci, as of 12 affected eyes only 2 healed with useful vision, while 10 suffered partial or total necrosis of the cornea. Of the 9 cases of diphtheritic eyes, the corneal complications were easily met by serum treatment except in one, which was complicated with a pneumococcus infection. BERGER.

ROSENHAUCH (558, **Some influenza infections of the eye**) saw three cases of severe conjunctivitis in infants who presented no other symptoms of influenza either before or afterward, a metastatic subconjunctival abscess, a secondary dendritic keratitis, and a retrobulbar abscess during an attack of influenza. The bacteriological examination revealed the influenza bacilli in all the cases, white staphylococci or xerosis bacilli in some. He believes that the latter were only harmless saprophytes. Although the final outcome was good in all his cases, he thinks that any infection of the eye with the influenza bacillus is a more serious disease than it has been considered. KNAPP.

During the first six months of 1908, ALT (559, **An epidemic of pneumococcus conjunctivitis**) observed several hundred cases of conjunctivitis in and about St. Louis, in nearly all of which he found the pneumococcus, and very often that organism alone. The infection always involved both eyes, occurred at all ages, and was both acute and chronic. There were comparatively few corneal complications. The clinical picture and duration varied greatly. Immunity did not seem to be established.

During the epidemic, one case of panophthalmitis followed cataract extraction. He recommends as a staining fluid the Azure 2 of the Giemsa stain for treponema pallidum.

ALLING.

McKEE (560, **Morax-Axenfeld conjunctivitis**) in 600 cases of conjunctivitis in Montreal found 300 due to this micro-organism. It is relatively more common in adults and seems to be more prevalent in the cold months, contrary to general belief. In eleven cases there were corneal ulcers. In the treatment he has never known a weak solution of sulphate of zinc in the form of irrigation to fail. ALLING.

PUSEY (561, **Histological investigations of a case of blepharo-conjunctivitis caused by the diplobacillus of Morax-Axenfeld**) examined histologically all the tissues about the eye in a case which before death was determined as chronic infection with the diplobacillus. The more important of his findings are as follows: increase in the epithelial cells with mucoid changes in those of the conjunctiva of the tarsal, transitional fold, and bulbar regions. Diffuse infiltration of the subepithelial tissue with plasma cells. Diplobacilli are nowhere found below the epithelial layer. Bacilli, debris, and epithelial cells are held together by mucous shreds. Ingrowths of epithelial cells and necrotic areas are seen at the limbus. ALLING.

GILBERT (562, **Treatment of ophthalmia neonatorum with cattle serum**) washed out the conjunctival sac with serum every two hours. The serum can be kept on ice for 24 hours. He treated 8 cases in this way, part of them severe, and they recovered in from two to three weeks almost without other medication. Silver was used only in very obstinate cases. A greatly increased phagocytic capacity of the leucocytes could be made out after each washing out. Gilbert does not recommend the washing out with serum to be used exclusively in the treatment of ophthalmia neonatorum, but to take the place of the usual antiseptic cleansings and to employ the silver treatment along with it.

JANULAITIS (563, **The tarsal follicles in trachoma**) says that the tarsal follicles, which always appear first in advanced stages of trachoma, are to be distinguished from the other follicles by their small size and slight elevation; they are not elementary nodules, but follicles which are backward in

development as the result of the peculiar conditions of pressure and tension in the conjunctiva and tarsus of the upper lid. Their construction, which deviates somewhat from that of the other follicles, he also ascribes in part to mechanical causes. The follicles have a connective-tissue envelope which belongs genetically to the surrounding connective tissue.

KNAPP.

GRUETER (564, **A yellow, Gram-negative bacillus in a case of chronic trachoma**) cultivated from the conjunctiva of a patient with chronic trachoma a slender, Gram-negative bacillus which grew well in all nutritive media and formed citron-yellow colonies. Repeated inoculations gave the same result. The germ proved not pathogenic for the eyes of animals or men, or for the bodies of animals. Grueter believes that this hitherto unobserved micro-organism, which he calls the bacillus citreus conjunctivæ, is to be found only as an occasional saprophyte in the conjunctiva. KNAPP.

GREEFF (565, **More concerning trachoma**) reviews the recent literature on the trachoma bodies. These are very regularly minute bodies, smaller than the smallest known cocci, which are Gram-negative, stain reddish or violet with Giemsa, and are surrounded by a bright areola. Usually they appear to lie two together like diplococci. They were first found in the contents of the follicle free and intracellular, then by Halberstaedter and v. Prowazek in the epithelium, and finally in the secretion. These trachoma bodies are difficult to find and are demonstrable only in fresh, untreated cases. The fact that after a few days of treatment with copper they can no longer be found leads Greeff to believe that they may disappear only from the surface and recruit in the deeper tissue. He insists that there is no doubt of their regular presence in suitable cases of trachoma, but warns that the diagnosis of trachoma must not be made dependent on their presence. KNAPP.

MIJASCHITA (566, **The so-called trachoma bodies**) found a new condition in the epithelium and secretion of a series of trachomatous conjunctivæ together with Prowazek's bodies and similar formations. He saw, almost wholly in the hyalin-appearing epithelia, round or roundish dark-blue granules about the size of staphylococci, which were amassed in the nucleus either alone or in association with Prowazek's bodies. He

thinks that this may be an early stage of the Prowazek bodies. The latter are in his opinion absolutely specific for trachoma. He is convinced that an acute trachoma exists which is contagious from man to man. Artificially produced trachoma agreed in all points with the natural; he observed an incubation period of seven days during which he could find no bodies. KNAPP.

KUHNT (567, **The indications for the operative treatment of trachoma**) recommends the removal of the upper retrotarsal fold together with a portion of the tarsus as a radical operation in trachoma. The method has proved good in trachoma regions; it exercises a very favorable influence upon severe cases, prevents the onset of secondary symptoms and recurrences, and cures quickly. In regions where the contagion is great, expression results in no permanent cure. KNAPP.

LAPON (568, **Epibulbar tuberculoma**) described in 1904 a new clinical form of tuberculosis of the conjunctiva which he called epibulbar tuberculoma or tuberculous gumma of the conjunctiva. In the present article he describes 19 cases of this disease. It may appear as a circumscribed tumor with elimination later of the necrotic tissue and the formation of an ulcer, or exceptionally as a circumcorneal circular fatlike swelling of the bulbar conjunctiva. Complications observed have been partial opacity of the cornea, opacity of the lens, and, in one case, panophthalmitis from secondary infection. The prognosis as to life is unfavorable, because the patients usually die of general tuberculosis. BERGER.

NATHANSON (569, **Abscess beneath the bulbar conjunctiva**) found on the medial side of the eyeball of a girl seven years old a firm, immovable swelling as large as a bean, beginning *3mm* from the limbus. The conjunctiva over the swelling was injected, elsewhere it was normal. There was no pain. The tension was normal. Warm applications were made for 18 days, when a point of pus became visible. After incision there was an escape of pus in which the staphylococcus pyogenes aureus was present. The abscess cavity appeared to be partially filled with granulation tissue. No foreign body or cilium was found. Recovery was gradual, leaving a little scar.

HIRSCHMANN.

In a superficial tumor of the bulbar conjunctiva, BARTELS

(570, **Tumor of the bulbar conjunctiva with follicles and mucous cysts**) found a peculiar histological condition which was similar in many respects to some cases described as atypical vernal catarrh. Clinically no similarity was present. He saw great proliferations of epithelium, many cysts with and without mucus, and a large true follicle; between the sprouts of epithelium were great heaps of plasma cells. He believes that this was a congenital anomaly, certainly as regards the follicle. As regards the cysts, these have in part a certain similarity to the glands about the limbus in pigs' eyes, described by Manz, but it seems to be doubtful that any such connection exists in the genesis of the cysts. He thinks they, as well as the follicles, were caused by a congenital anomaly. KNAPP.

The hypertrophies and tumors observed on the conjunctiva and cornea by PASCHEFF (571, **Plasma-cellular formations of the conjunctiva and cornea**) have not been described before. He calls this particular form of tumor, which presents an adenoid structure and is composed of numerous plasma cells, plasmoma. The sausage-shaped tumors of the conjunctiva met with in chronic trachoma show a very similar structure, but are to be differentiated from the plasmoma by their abundance of lymphocytes and follicular formations. The plasmoma contains hyaline balls, the so-called Russell's corpuscles. Pascheff thinks they originate from the protoplasm of the plasma cells. The origin of the plasmoma is not yet quite clear, but it is certainly a purely local formation. KNAPP.

SCHREIBER (572, **Demonstration of a molluscum contagiosum of the lachrymal caruncle and a hyaline tumor of the plica semilunaris**) describes two rare tumors of the inner canthus. The first was a knoblike tumor of the caruncle, which was entirely involved in the growth, which caused epiphora and ectropium of the lower lid. The microscopic examination of the easily removed tumor proved it to be a benign molluscum contagiosum. It was met with in a man 58 years old. The second case, met with in a man 24 years old, was one of a flat, grayish-red tumor, coming from the plica semilunaris, which lay loosely on the globe and looked exactly like the palpebra tertia of a rabbit. Microscopically the tumor belonged with the hyaline or amyloid growths. KNAPP.

ROY (573, **Large sarcoma of the bulbo-palpebral conjunc-**

tiva) observed in a boy six years old the appearance of a round-cell sarcoma, which grew in seven weeks to the size of 2 x 7 x 5*cm.* Although the tumor was attached to the conjunctiva by a pedicle, Roy performed enucleation and then exenteration of the orbit. Six months after the operation there had been no recurrence. BERGER.

GROSS (574, **Primary epibulbar melanosarcoma**) excised from the nasal limbus a small black tumor measuring about 1½*mm* in diameter. Twenty months later there had been no recurrence. The growth was composed of small and medium-sized cells, some pigmented and some non-pigmented, the whole being covered with epithelium. The tumor cells were invading the conjunctiva. The writer adopts Ribbert's classification and calls the cells chromatophores.

ALLING.

Recurrences in this affection are common. FAITH'S (575, **Papilloma of the conjunctiva, with report of a case successfully treated with the X-rays**) patient had had a number of operations previously but was cured by the X-rays with only a few scars remaining. The palpebral conjunctiva of the upper lid was covered with the sessile fleshy growth. ALLING.

XII.—CORNEA, SCLERA, ANTERIOR CHAMBER.

576. KIMBERLIN, J. W. **Report of a corneal case.** *Ophthalmic Record*, Dec., 1908.

577. HULEN, V. H. **Opacification of the cornea following cataract extraction.** *Jour. Amer. Med. Assoc.*, July 25, 1908.

578. KIPP, CHARLES J. **A case of grill-like keratitis.** *Trans. Amer. Ophthalm. Soc.*, 1908.

579. HANDMANN, M. **Etiology of chronic peripheral grooving of the cornea.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 264.

580. HEATH, F. C. **Zonular opacity of the cornea.** *Jour. Amer. Med. Assoc.*, July 18, 1908.

581. GILBERT, W. **Clinical and pathological contributions to degenerative diseases of the cornea. Degenerative pannus and keratitis bullosa.** *Archiv f. Ophthalmologie*, lxix., i., p. 1.

582. KOELLNER. **The danger to the cornea from the operative removal of the Gasserian ganglion.** *Muench. med. Wochensch.*, 1908, p. 2531.

583. DUVERGER. **A form of traumatic keratitis.** *Soc. d'ophtalmol. de Paris*, Jan. 12, 1909.

584. TRANTAS. **Superficial keratitis from vapor of ammonia.** *Rec. d'ophtalmologie*, xxxi., p. 16.

585. SILBERSIEPE, FRITZ. **Contribution to the study of syphilitic parenchymatous keratitis with the aid of Wassermann's reaction.** *Inaug. Dissert.*, Berlin, 1908.

586. CARPENTER, J. T. **Diffuse interstitial keratitis in acquired syphilis.** *Annals of Ophthalmology*, Oct., 1908, and *Trans. Amer. Ophthal. Soc.*, 1908.

587. DAVIS, A. E. **Diffuse interstitial keratitis in acquired syphilis.** *Jour. Amer. Med. Assoc.*, July 25, 1908.

588. BIELSCHOWSKY, A. **An unusual form of syphilitic keratitis.** *Bericht u. d. 35 Versammlung der ophthalm. Gesellsch.*, Heidelberg, 1908.

589. MEYERHOF, M. **Follicle formation in the corneal pannus of trachoma.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii.

590. ROSENHAUCH, E. **Contribution to the etiology of corneal ulcers.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 514.

591. ZADE, M. **The diplobacilli ulcer of the cornea.** *Ibid.*, p. 153.

592. HAYASHI, M. **Ulcus rodens corneæ.** *Ibid.*, p. 498.

593. MARX. **A case of blister of the cornea.** *Ibid.*, p. 259.

594. CHEVALLEREAU. **Combined transverse keratotomy.** *Bericht u. d. 35 Versammlung der ophthalm. Gesellsch.*, Heidelberg, 1908.

595. REIS. **Demonstration of a primary tumor of the cornea.** *Ibid.*

596. NAPP. **Rare tumors of the eye.** *Zeitschrift f. Augenh.*, xx., p. 575.

597. JUNG. **Epibulbar malignant tumors.** *Klin. Monatsbl. f. Augenh.*, xlvi., ii., p. 461.

598. MOISSONIER. **Fibroma of the sclera.** *Annales d'oculistique*, cxi., p. 414.

KIMBERLIN'S (576, **Report of a corneal case**) case showed complete anæsthesia of both corneæ with dense opacity of the right, which was broken down in the centre. Although the corneæ were dry, the conjunctiva seemed moist and only slightly anæsthetic. There was practically complete absence of nictitation. The skin of the forehead was wrinkled and dry and showed discolored patches. There were several scars on the face arising from slight injuries. A small section of the nose was eaten away by ulceration. No syphilitic or tuberculous history, but one of the father's four brothers had died of consumption. He thinks the condition due to sensory and trophic disturbances involving the trigeminus. ALLING.

HULEN (577, **Opacification of the cornea following cataract extraction**) reports a case of striped keratitis after smooth extraction, which remained permanent with some diffuse opacity of the cornea. The other eye had been operated upon

some years previous with subsequent dense opacities. No strong antiseptics were used. ALLING.

KIPP (578, **A case of grill-like keratitis**) found numerous opaque dots and very short opaque lines chiefly in the central part of the cornea and all situated in the outer layers. These opacities were slightly raised, but the epithelial layer was intact. This condition involved both eyes and persisted for at least two years with moderate interference with vision. The case seems like those reported by Fehr and others under the name "trellised opacity of the cornea." It is chronic and sometimes affects several members of the same family. ALLING.

To study the question whether the chronic peripheral grooving of the cornea is a purely degenerative process or partly inflammatory, HANDMANN (579, **Etiology of chronic peripheral grooving of the cornea**) took the earliest possible uncomplicated cases; their secondary conditions, the peripheral ectasia, may call forth various pathological processes in his opinion. He agrees with Alfelder that the cause is a peculiar process of degeneration of the cornea. In several of his cases other degenerative processes could be demonstrated, such as senile disease of the macula. He believes that a portion of the cases of peripheral ectasia of the cornea are of inflammatory origin, but differentiates these etiologically from the cases of chronic peripheral grooving, which he considers as a definite, pathological condition. KNAPP.

According to HEATH (580, **Zonular opacity of the cornea**), this disease occurs principally in men and after middle life. The progress is slow, usually painless; and there is no ulceration. Both eyes eventually become involved. The film is composed of hyalin and lime. The disease is made worse by atropin. Scraping is sometimes beneficial. He describes a case the peculiarities of which are the rather early age of onset, unusual pain, and improvement without operation. ALLING.

Among the six cases of keratitis bullosa reported by GILBERT (581, **Clinical and pathological contributions to degenerative diseases of the cornea. Degenerative pannus and keratitis bullosa**), there were three of coincident degenerative pannus. He ascertained that the latter can be present extensively without causing the slightest clinical symptom. The absence of ves-

sels and the poverty of cells of the pannus had not injured the transparency of the cornea in the eyes which had long been blind. The onset of pannus with simultaneous bullous keratitis he takes to be an anatomical process of healing. In his opinion, bullous keratitis is not an inflammatory, but a degenerative or mechanical process which leads to the formation of the bullæ. He found anatomically, together with specific degenerative processes in the epithelium, hydropic swelling and destruction of the cells with epithelial cavities. The name keratitis bullosa corresponds well to the clinical picture, but not to the anatomical process. KNAPP.

KOELLNER (582, **The danger to the cornea from the operative removal of the Gasserian ganglion**) investigated twelve cases of extirpation of the Gasserian ganglion. The complete anæsthesia had a varyingly unfavorable influence upon the condition of the cornea. Diseases begin with defects of the epithelium, may heal quickly and recur; infections often heal slowly. Even though the deficiency of the trigeminus and of the sympathetic causes no actual harm, it endangers the cornea. It was also noted that the closure of the lids was never delayed, that the secretion of tears was always lessened, and that on account of muscular paralyses vision was frequently interfered with.

DUVERGER (583, **A form of traumatic keratitis**) observed in a boy thirteen years old an interstitial traumatic keratitis that caused an opacity of the cornea which was separated from the peripheral zone of transparent cornea by a fairly sharp margin and presented a clinical picture somewhat similar to that of a luxation of the lens into the anterior chamber.

BERGER.

TRANTAS (584, **Superficial keratitis from vapor of ammonia**) observed in a workman thirty years old a superficial opacity of the portion of the right cornea not covered by the lids, which resolved itself under the loupe into a great number of extremely fine white points. The vision was reduced to one-half. He ascribes this corneal opacity to the action of ammonia upon the eye. BERGER.

SILBERSIEPE (585, **Contribution to the study of syphilitic parenchymatous keratitis with the aid of Wassermann's reaction**) investigated one hundred cases of interstitial keratitis

with special references to their etiology, using Wassermann's reaction. Syphilis was present in all the cases. Wassermann's reaction was positive in 85; in only 9 were there signs of tuberculosis in addition to the syphilis. In interstitial keratitis from hereditary syphilis there were usually peripheral changes in the choroid, while in acquired syphilis the complications affected the iris, the ciliary body, and the sclera. Hutchinson's teeth and diseases of the bones formed the principal bodily symptoms of hereditary syphilis. KNAPP.

CARPENTER (586, **Diffuse interstitial keratitis in acquired syphilis**) points the characteristic of this disease as punctate opacities which gradually fuse and without marked corneal injection return to normal transparency in from one to five months without involvement of the uveal tract. There is, however, a variety which involves only the upper part of the cornea and is invariably accompanied by iritis. The disease is usually unilateral, and it is generally found in the tertiary stage. The characteristic signs of the disease are present. Prognosis is better than in the inherited cases. It is interesting to note that ten cases of interstitial keratitis, associated with chancre of the conjunctiva, have been reported in the literature. ALLING.

DAVIS (587, **Diffuse interstitial keratitis in acquired syphilis**) has been unable to find records of cases of this sort although it is well known to occur occasionally. He recites two cases. ALLING.

BIELSCHOWSKY (588, **An unusual form of syphilitic keratitis**) saw a peculiar syphilitic disease of the cornea appear five years after the infection. In addition to a severe iridocyclitis, two roundish, yellow foci formed deep in the cornea, one of which increased rapidly and greatly in size. A hypopyon half filled the anterior chamber. At the same time a deep, yellow band appeared on the medial margin of the cornea, later on the lower and upper margins. The anterior chamber when emptied by puncture soon reformed. Retrogression was fairly rapid under energetic specific treatment. Slight corneal opacities persisted. The final vision was one-fourth to one-fifth. KNAPP.

According to MEYERHOF (589, **Follicle formation in the corneal pannus of trachoma**) the marginal pits met with in tra-

chomatous pannus are shrunken true trachoma follicles. He saw marginal follicles of the cornea very frequently in his rich material in Cairo, but only when pannus was present and always some weeks after its development. The microscopic picture was exactly the same as that of the trachoma follicle. A growth and a union of the follicles were also observed, as well as the appearance of a brawny lymphatic mass, which filled the interspaces between them and thus produced the picture of the so-called pannus crassus. He considers these facts new evidence that the corneal disease in trachoma is to be ascribed to an infection and not to mechanical irritation. Marginal follicles and their sequelæ were observed in 50% of the cases of pannus; they were never found in the central parts of the cornea. KNAPP.

ROSENHAUCH (590, **Contribution to the etiology of corneal ulcers**) cultivated from the purulent deposit in an ulcus corneæ serpens a germ morphologically resembling fungus rather than bacteria which he calls keratophyton. He proved it to be pathogenic for animals, not only for the corneæ of guinea-pigs, but also generally for mice. A method of treatment of ulcus serpens which Rosenhauch has long employed with good results is to instil twice daily a 1:200 solution of pyoctanin cœruleum, leave it in contact with the ulcer for some minutes, and then instil a 50% solution of dionin, apply an ointment of atropin and cocain, and then an alcohol dressing. This hastens the cicatrization of the ulcer and shortens its duration.

KNAPP.

ZADE (591, **The diplobacilli ulcer of the cornea**) reports twenty-seven cases of corneal ulcer due to diplobacilli. Disease of the lachrymal sac was not present, and there was no conjunctivitis. He thinks that the diplobacilli occasionally vegetate in the conjunctival sac without producing typical symptoms and are then able to cause a severe corneal infection through a small lesion of the epithelium. This form of ulcer cannot be diagnosed clinically after a single examination as such, but only after observation of its course. It usually has a circular, disk-like form; its floor is covered with a glassy, gray mucus. It may be distinguished from the ulcus serpens by a peculiar glassy condition of the progressive margin, which is also usually much more superficial. Zinc

sulphate acts as a specific against the diplobacillus ulcer, the more effectively the earlier it is used. KNAPP.

HAYASHI (592, **Ulcus rodens corneæ**) has carefully studied both clinically and pathologically a series of cases of ulcus rodens corneæ which is comparatively frequent in Japan. With regard to the etiology, he believes that it is the specific bacterial process of a hitherto unknown micro-organism. The fact that ulcus rodens always appears in old people and primarily in the marginal portion of the cornea, he explains by the lowered power of resistance of this part of the cornea in old age, as shown by the appearance of the arcus senilis. The exciting cause is exclusively a traumatism with simultaneous infection. The most suitable treatment is to remove the focus of disease completely in its early stage. When a complete removal of the diseased from the subjacent healthy tissue is no longer possible, he is accustomed to cauterize the floor of the ulcer and cover it with conjunctiva. KNAPP.

MARX (593, **A case of blister of the cornea**) saw a true blister of the cornea from molten lead. This was not recognized clinically, because there was a uniform, very flat elevation of the epithelium, but the microscopical examination revealed a condition which corresponded throughout with that of a blister of the skin.

CHEVALLEREAU (594, **Combined transverse keratotomy**) advocates the following method of operation to enable definitely lost or deformed eyes to carry a prothesis. He cuts transversely through the entire cornea and removes the iris and lens without injury to the choroid or retina. The cornea subsequently shrinks, as does also the globe, but the latter retains its round form and gives good motion to the prothesis. He has performed the operation twenty-one times with good cosmetic results in buphthalmia, staphyloma, absolute and secondary glaucoma. The prothesis can be worn about six weeks after the operation. KNAPP.

REIS (595, **Demonstration of a primary tumor of the cornea**) describes a smooth, flesh-red tumor involving the entire surface of the cornea, which developed epicorneally and penetrated Bowman's membrane only in places. Histologically the tumor was a pigment-free chromatophoroma of Ribbert. It started from the proliferation of the corneal portion of a

nævus situated on the corneal margin and encroaching on the cornea. The growth was taken from a woman seventy-two years old. KNAPP.

NAPP (596, **Rare tumors of the eye**) describes several rare tumors. The first two were taken from a woman seventy years old and a man of sixty. They were two little tumors at the limbus of the cornea which were non-pigmented and firmly attached to the cornea like knobs, or mushrooms. They were easily removed together with the superficial layers of the cornea. Histologically the tumor in the first case was a pure carcinoma, in the second a carcinoma sarcomatodes. The former recurred two months later. The third case was one of a round-cell sarcoma of the orbit which caused no symptoms except a slight exophthalmos and a little swelling beneath the conjunctiva at the insertion of the internal rectus, which was entirely transformed into tumor material. The growth reached subconjunctivally forward as far as the corneo-scleral margin, backward it was attached to and completely surrounded the dura of the optic nerve. Its starting-point was the interstitial tissue of the internal rectus. In another case of sarcoma of the orbit there was perfect preservation of the physiological function of a muscle in spite of serious anatomical injury. KNAPP.

JUNG (597, **Epibulbar malignant tumors**) reports four epibulbar tumors, a spindle-cell sarcoma which by its ulceration had simulated in its clinical appearance a carcinoma, two epibulbar carcinomata, one of which perforated at a very early stage into the anterior chamber, and a second recurrence of a melanotic tumor. The nature of these tumors can never be diagnosticated clinically, but from the microscopic condition solely. KNAPP.

MOISSONIER (598, **Fibroma of the sclera**) saw in a man fifty-four years old the onset of a tumor, resulting from a trauma, which was connected with the tendon of the inferior rectus on one side, with the sclera on the other, and was covered by normal conjunctiva. It was extirpated and found to be a fibroma. After the operation there was nothing abnormal to be seen about the eye. Only one similar case has been reported. BERGER.

Sections XIII.–XVIII. Reviewed by Dr. NICOLAI, Berlin.

XIII.—LENS.

599. COLLINS, E. TREACHER. **Developmental deformities of the crystalline lens.** *Ophthalmoscope*, Aug., 1908.

600. ARMAIGNAC. **Spontaneous resorption of the lens in adults, as the result of traumatic cataract or of discission.** XXV. *Jahresvers. der franz. ophthalm. Gesellschaft*, May 7, 1908.

601. SMITH, MAJOR HENRY. **The treatment of immature cataract** *Trans. Amer. Ophthal. Soc.*, 1908.

602. V. PFLUGK. **The potassic-iodide treatment of incipient cataract.** *Med. Klinik*, 1908, No. 7.

603. GREENE, D. W. **The association of age and incipient cataract with normal and pathological blood-pressure.** *Journ. Amer. Med. Assoc.*, Aug. 1, 1908.

604. ZENTMAYER, WM. **A rare form of complicated cataract.** *Ophthalmology*, July, 1908.

605. CLAIBORNE, J. H. **Extraction of cataract with a lance-shaped knife.** *Trans Amer. Ophthalm. Soc.*, 1908.

606. UHTHOFF, W. **Cataract operations in diabetics.** 35 *Vers. der ophthalm. Gesellschaft* in Heidelberg, Aug. 5, 1908.

607. DIDIKAS. **Note from ophthalmic practice in Egypt.** *Annales d'Oculistique*, CXV., p. 359.

608. PETERS, A. **Some disturbances in the course of healing after a cataract operation.** *Zeitschrift f. Augenheilkunde*, XX., 4, p. 334.

609. LOEHLEIN, W. **Annular opacity of the anterior surface of the lens and papillitis after contusion.** *Ibid.*, p. 365.

610. TERRIEN. **Cataract in consequence of electric shock.** *Société d'ophtalm. de Paris*, Oct., 1908.

COLLINS (599, **Developmental deformities of the crystalline lens**). The author shows that several forms of congenital cataract are the outcome of arrests of development in the lens at different stages in its evolution. The lens develops in three stages: (1) The downgrowth of a fold of cuticular epiblast, which is separated as a hollow vesicle from the rest of the surface epiblast by intruding mesoblast, and surrounded by a hyaline capsule; (2) the lengthening out of the cells comprising the posterior layer of the vesicle until they fill its entire cavity. These are the first formed lens-fibres and exist as the most central part of the fully developed lens; (3) the proliferation of the cells lining the anterior capsule and their transformation at the side of the lens into lens fibres. The arrests of development during the first stages have mainly to do with the lens capsule which is the product of the epithelial

cells lining it. The time during which the posterior capsule develops is short, and congenital gaps are met with which are bridged over by fibrous-tissue formation in the anterior part of the vitreous. This fibrous tissue may contain blood-vessels from the hyaloid artery and may extend through the gap and cause the admixture of mesoblastic and epiblastic tissue with the lens. This fibrous-tissue formation accounts for those cases of exceedingly tough congenital cataracts which show little tendency to absorb after discission. The protrusion of lens substance through a gap, or the bulging of a congenitally thin posterior capsule, best explains posterior lenticonus. Other mal-developments may originate during the second stage. If the cells forming the posterior layer of the lens vesicle for some reason failed to elongate into lens fibres then no nucleus would be formed, and the laterally developed lens fibres would have nothing to encircle. This condition would give rise to a disk-shaped cataract of which four cases have been described. Incorrect development during the third stage would affect the lateral fibres. If these fail to develop we get a lens with a small nucleus floating in a capsule distended with a milky fluid. There may also be a congenital backward displacement of the nucleus or a fusiform axial cataract, both due to defective growth of the laterally developed fibres. Finally there may be axial opacities radiating forwards and outwards from the nucleus.

As regards treatment of congenital cataract Collins concludes:

(1) That it is best to wait till a child is ten months old before operating, because the eye is too small for manipulations and there is not enough aqueous to dissolve the lens.

(2) If the pupil is small and does not dilate with atropin commence with an iridectomy.

(3) In nearly all cases commence with discission.

(4) If the cataract be a dense white anterior polar one set in a ring of clear lens and flattened antero-posteriorly, the so-called disk-shaped cataract, then an attempt should be made to separate the central opacity and let it fall into the anterior chamber. Two needles may be necessary.

(5) In a congenital Morgagnian cataract it is well to evacuate the milky fluid at once for fear of high tension.

(6) In some cases of congenital cataract the whole lens can be removed by forceps

(7) If after discission a dense white fibrous-looking membrane remain, there is probably some atypical development of the anterior part of the vitreous. The membrane is best treated by forcible depression out of the pupil.

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ARMAIGNAC (600, **Spontaneous resorption of the lens in adults as the result of traumatic cataract or of discission**) is of the view that discission can be performed in adults without danger of glaucomatous increase of tension. The conditions for resorption are more favorable than one would expect. He reports ten good results in patients between twenty and forty years of age. Atropin is instilled for a week.

SMITH'S (601, **The treatment of immature cataract**) views on this subject are first, the extraction of immature cataract by the capsulotomy method is unjustifiable; second, ripening procedures are either unsatisfactory or dangerous; third, to wait for Nature's maturing process is highly unsatisfactory and detrimental to the patient; fourth, the extraction of the lens in its capsule, a method of which he is so ardent an advocate, is a procedure admirably suited to the extraction of the immature lens. The stage at which he advises the operation is when the progress of the opacity has unfitted its possessor for the performance of his ordinary duties.

ALLING.

PFLUGK (602, **The potassic-iodide treatment of incipient cataract**) has made numerous experiments with potassic iodide in commencing cataract and recommends injections of a 1% solution several times a week. To prevent pain he uses acoin. Instillations and baths of the eye are also used.

GREENE (603, **The association of age and incipient cataract with normal and pathologic blood-pressure**) estimated the blood pressure in four hundred men over sixty years of age, and believes that a certain relation exists between high blood-pressure and cataract. It is commonly supposed, however, that both the increased tension and cataract are consequent upon advancing years. ALLING.

ZENTMAYER'S (604, **A rare form of complicated cataract**) two cases were brother and sister, twenty-five and twenty-two

years respectively, and showed the following conditions in the eyes: Sclera white, anterior chamber deep, iris dull with absence of ordinary markings, pupils small and sluggish, iridodonesis and fluid vitreous, cataract. That the cataracts which developed late were secondary to pathologic eye changes (probably hereditary) is most likely. Operation by discission gave good results. Only a few similar cases have been reported. ALLING.

CLAIBORNE (605, **Extraction of cataract with a lance-shaped knife**) has had constructed a lance knife which when pushed to the lower iris angle will make an incision of two-fifths the diameter of the anterior chamber. He theorizes upon the advantages of this old method and seems to have obtained satisfactory results by its use. ALLING.

UHTHOFF (606, **Cataract operations in diabetics**) has operated on 115 eyes of diabetics for cataract without the loss of an eye. In two eyes the vision was very slight after the operation, and one patient died in coma five days after the operation. The results in the remaining cases were vision 1 to ^{1} in 68%; from $\frac{1}{2}$ to $\frac{1}{10}$ in 18%; below $\frac{1}{10}$ in 14%. The complications met with were iritis, slight inflammation of the iris, glaucoma, hemorrhages into the anterior chamber, retina, and vitreous, changes in the retina and in the choroid. The technique is the same as in the usual operation for cataract; the results are nearly the same. Asepsis reduces the predisposition to inflammation in diabetes, so its careful observation is requisite.

DIDIKAS (607, **Note from ophthalmic practice in Egypt**) reports cases of cataract extraction in which the patients rode to their dwellings in wagons, or in one case on a horse, after the operation. The latter patient returned on foot to the clinic three days later. In all of these cases the final result was good. BERGER.

PETERS (608, **Some disturbances in the course of healing after a cataract operation**) mentions first a keratitis bullosa caused by degeneration of the endothelium, a form of vesication of the corneal epithelium not heretofore described. The second case was one of kerato-iritis induced by the irritation caused by a 1 to 11,000 solution of oxycyanide of mercury.

LOEHLEIN (609, **Annular opacity of the anterior surface of the lens and papillitis after contusion**) reports another case in

which an annular opacity was formed on the surface of the lens after a contusion of the globe. He was able to recognize that the opacity first formed was disk-shaped and that the central part, which was least dense, cleared up very quickly so that it may frequently not be observed.

TERRIEN (610, **Cataract in consequence of electric shock**) reports a case in which a cataract formed within three months after a shock with 500 volts of electricity, first in the cortical layer and later involving the entire lens.

XIV.—IRIS.

611. COPPEZ. **A case of mydriasis transformed into myosis by the bending of the head forward.** *Soc. Belge d'ophtalmologie*, Nov. 27, 1908.

612. THILLIEZ. **Treatment of cysts of the iris by means of electrolysis.** XXV *Jahresvers. d. franz. ophthalm. Gesellschaft*, May 7, 1908.

613. FRENKEL, H. **Recurrent hemorrhages following iridectomy.** *Recueil d'ophtalmologie*, XXX., p. 401.

614. LAGRANGE, FELIX. **A case of angioplastic sarcoma of the iris successfully treated by iridectomy. Cure maintained for more than three years.** *Archives d'ophtalmologie*, XXIX., p. 78.

615. JUDIN, K. A. **Primary sarcoma of the iris.** *Westn. Ophthalm.*, Jan., 1909.

616. BEAUMONT, W. M. **Remarks on iritis.** *British Medical Journal*, July 18, 1908.

617. TOOKE, H. **Hypopyon iritis associated with epidemic cerebrospinal meningitis.** *Ophthalmology*, July, 1908.

618. VERHOEFF, F. H. **A small sarcoma of the ciliary body showing some unusual manifestations of malignancy.** *Ophthalmology*, July, 1908.

COPPEZ (611, **A case of mydriasis transformed into myosis by the bending of the head forward**) reports the case of a young girl who had mydriasis of one eye which was changed into myosis while her head was bent forward. As each contraction of the pupil was accompanied by severe pain, a resection of the cervical sympathetic of the affected side was performed. After the operation the paradoxical pupillary contraction persisted, though no longer associated with pain. BERGER.

THILLIEZ (612, **Treatment of cysts of the iris by means of electrolysis**) removed a cyst of the iris that filled two-thirds of the anterior chamber by means of the galvanic current, and no recurrence had appeared at the end of five months.

FRENKEL (613, **Recurrent hemorrhages following iridectomy**) observed hemorrhages into the anterior chamber that recurred several times after an iridectomy on a woman 65 years old suffering from chronic iritis. He ascribed them to a toxæmia due to an existing epithelioma of the uterus.

BERGER.

LAGRANGE (614, **A case of angioplastic sarcoma of the iris successfully treated by iridectomy**) removed a tumor of the iris from a woman 38 years old, by means of an iridectomy, and found it to be a spindle-celled sarcoma without pigment. No recurrence had taken place at the end of thirty-eight months. The vision of the eye operated on was good. He believes that the eye should not be enucleated in cases of sarcoma of the iris, but that the tumor should be extirpated by means of an iridectomy. BERGER.

JUDIN (615, **Primary sarcoma of the iris**) accidentally noticed a rose-yellow nodule as large as a hemp-seed, which he suspected to be sarcoma, in the upper-outer periphery of the iris of a sailor 27 years old, who had consulted him on account of a foreign body in the cornea. The vision was 1; the eye was otherwise normal. Two months later the nodule had markedly increased in size and was then removed by means of a broad iridectomy. Eight days after the operation, optic neuritis appeared in the eye, reducing the vision to 0.9. After a sweating treatment with dry heat, the neuritis retrograded and the vision returned to 1. The tumor was a spindle-celled sarcoma. HIRSCHMANN.

BEAUMONT (616, **Remarks on iritis**). Iritis is almost never associated with acute rheumatic fever; many authorities even question its connection with chronic rheumatism. Beaumont practises at Bath, where many rheumatic cases come for hydropathic treatment. Most of the cases are young men who have suffered from gonorrhœa, and after months or years it has been followed by a painful relapsing iritis. Griffiths thinks that gonorrhœa may be followed by iritis even after an interval of years. Many authors conclude that most cases of "rheumatic" iritis are really gonorrhœal in nature. The author quotes notes of twenty cases of iritis he has seen in the Royal Mineral-Water Hospital at Bath; most of them exhibit the characteristic syndrome—gonorrhœa, arthritis, iritis.

He concludes that gonorrhœal iritis is very much commoner than many ophthalmic surgeons think. He is very sceptical both as regards rheumatic and gouty arthritis.

A useful bibliography is appended.

T. HARRISON BUTLER.

Metastatic infection of the anterior segment of the eye in this disease is a rare occurrence. TOOKE (617, **Hypopyon iritis associated with epidemic cerebro-spinal meningitis**) saw in a fatal case an acute purulent irido-cyclitis and found during life in the cerebro-spinal fluid the meningococcus. Examination of the eye tissues later disclosed bodies which closely resembled this organism. Although other forms of infection cannot be ruled out, his conclusions as to the metastatic process seem justified. ALLING.

The primary tumor described by VERHOEFF (618, **A small sarcoma of the ciliary body showing some unusual manifestations of malignancy**) was globular, 3.5*mm* by 2*mm* and occurred just posterior to the ciliary processes in the upper-outer quadrant, while an epibulbar growth was found at the limbus on the inner side and proved not to be an extension of the other mass but a true metastasis. There were also multiple secondary growths involving the iris and its roots. Secondary glaucoma had developed, apparently due to deposition of tumor cells in the filtration angle. ALLING.

XV.—CHOROID.

619. SULZER, **Pseudo-tumor of the eyeball.** *Soc. d'ophtalmologie de Paris*, Nov. 5, 1907.

620. FEJER, J. **A rare case of solitary tubercle of the choroid.** *Centralblatt f. Augenheilkunde*, xxxii., Sept., p. 257.

621. QUACKENBOSS, A., and VERHOEFF, F. H. **Angioma of the choroid.** *Annals of Ophthalmology*, Oct., 1908, and *Trans. Amer. Ophth. Soc.*, 1908.

SULZER (619, **Pseudo-tumor of the eyeball**) observed in a man 17 years old an eye that presented the clinical symptoms of an intraocular tumor. The eye was enucleated and the microscopical examination revealed the presence of albuminuric retinitis and a high degree of round-cell infiltration of the retina, choroid, and iris, which had simulated the presence of a tumor. BERGER.

FEJER (620, **A rare case of solitary tubercle of the choroid**) saw a patient, with a very probable tuberculous history, who had first a deep, very painful scleritis and then a tumor of the choroid as large as a pea near the ora serrata, which was diagnosed a solitary tubercle and treated with injections of tuberculin. The improvement was very slight; the vision fell finally to $\frac{4}{10}$, and several foci were appearing. Enucleation was refused and the patient was put on a dietetic treatment. Caseation did not take place, but the prognosis must be considered serious.

Angioma of the choroid is very rare. It is congenital and likely to be associated with nævus of the face QUACKENBOSS and VERHOEFF (621, **Angioma of the choroid**) report such a case, the pathological diagnosis being cavernous angioma, ossification of the chorio-capillaris, secondary glaucoma, and calcareous cataract, separation of the retina, and intraocular hemorrhages. ALLING.

XVI.—VITREOUS.

622. COOPER, J. BURDEN. **Entoptic researches into the structure of the vitreous.** *Ophthalmic Review*, Dec., 1908.

COOPER (622, **Entoptic researches into the structure of the vitreous**). In order to render the shadows thrown on to the retina by intraocular structures visible, the pencil of light must be strongly convergent or divergent. Such a pencil is obtained by looking at a small sphere of glass placed between a lamp and the eye, or by placing a high objective upside down upon the ocular of a microscope. Cooper gives a plate of the appearances seen, the familiar chains of beads which so many individuals can perceive when they look at a gray sky, streaks caused by folds in the hyaloid membrane, and an appearance probably caused by Cloquet's canal.

The paper is original and instructive and the experiments can be repeated by anyone. T. HARRISON BUTLER.

XVII.—GLAUCOMA.

623. HAMILTON, J. MCFLORY. **A case of buphthalmia.** *British Medical Journal*, Dec. 13, 1908.

624. v. MICHEL. **Buphthalmos and unilateral hypertrophy of the face.** 35th *Versammlung der ophthalm. Gesellschaft in Heidelberg*, May 8, 1908.

625. MEYER, A. **Contributions to the pathology of hemorrhagic retinal apoplexy from venous occlusion with subsequent glaucoma.** *Inaug. Dissert.*, Tuebingen, 1908.

626. SCALINCI, NOE. **Studies of the viscosity of the endo-ocular fluid in glaucoma.** *Archives d'ophtalmologie*, xxviii., p. 552.

627. SCALINCI, NOE. **The pathogenic differences between irritative and simple glaucoma.** *Ibid.*, xxix., p. 11.

628. LAGRANGE, FELIX. **The value of sclerectomy in the treatment of chronic glaucoma.** *Ibid.*, xxviii., p. 673.

629. ABADIE, CH. **Sclerectomy and iridectomy in glaucoma.** *Ibid.*, xxix., p. 21.

630. VALUDE, E. **Apropos of the irido-sclerectomy of Lagrange.** *Soc. d'ophtalmologie de Paris*, April 7, 1905.

631. BUSTORFF, A. **The results of treatment of simple glaucoma in the ophthalmological clinic at Helsingfors during the years 1877 to 1907.** *Finska Laekares*, handl., 1908, p. 127.

632. WERNICKE. **Experimental, clinical, and pathological communications concerning cyclodialysis.** *Klin. Monatsbl. f. Augenh.*, xlvi., ii., p. 579.

633. WUECHODZEW. **Influence of Heine's cyclodialysis on the change of intraocular fluids in connection with the question of the importance of this operation in the treatment of glaucoma.** *Dissert.*, St. Petersburg, 1907.

634. FRIDENBERG, PERCY. **Innovations in the treatment of persistent glaucoma: A study of the substitutes for iridectomy.** *Ophthalmic Record*, Dec., 1908.

635. CHENY, F. E. **Glaucoma following secondary (capsular) cataract operation.** *Ophthalmology*, Oct., 1908.

636. MINOR, J. L. **Restoration of sight after nearly a month's blindness from glaucoma.** *Trans. Amer. Ophthal. Soc.*, 1908, and *New York Medical Journal*, Nov. 7, 1908.

HAMILTON (623, **A case of buphthalmia**). The chief interest of the case is that the child was twelve years old and had been an in-patient eight years before. The condition had altered very slightly during this time. VR = fingers counted; VL = P. L. T + 1. Eserin did not alter the tension nor cause myosis. T. HARRISON BUTLER.

v. MICHEL (624, **Buphthalmos and unilateral hypertrophy of the face**) finds that in unilateral buphthalmos and hypertrophy of the face the condition of the eye is an associate symptom which indicates a co-ordinate disturbance. Sometimes neuro-fibromata, tumor-like thickenings of the ciliary nerves are found, similar to the condition of the hypertrophic side of the face.

MEYER (625, **Contributions to the pathology of hemorrhagic retinal apoplexy from venous occlusion with subsequent glaucoma**) speaks of the dependence of the intraocular tension upon the increase of that in the vascular system and considers it the cause in three glaucomatous eyes. He ascribes an importance to the vascular system in the anterior segment of the eye and refers to it the clinical symptoms in the eye.

SCALINCI (626, **Studies of the viscosity of the endo-ocular fluid in glaucoma**) estimated the viscosity of aqueous obtained by paracentesis of glaucomatous eyes by means of Ostwald's viscosimeter. Three cases were of glaucoma simplex, one of chronic inflammatory glaucoma, one of hydrophthalmos, and one of buphthalmos. He finds little change in the viscosity of the aqueous in glaucoma simplex and hydrophthalmos, consequently an increase of the protein substances in the aqueous cannot be supposed. He believes that this disproves Uribe y Troncoso's theory, that the intraocular increase of tension is due to an increased amount of albumin in the media of the eye. In the cases of increase of protein substances in the aqueous in chronic inflammatory glaucoma, it may be not the cause but the result of the increased intraocular tension. BERGER.

SCALINCI (627, **The pathogenic differences between irritative and simple glaucoma**) first reviews the known theories of the pathogenesis of glaucoma and of the theories concerning the nutritive currents in the human eye, in which he agrees with O. Weiss that these are in fact phenomena of absorption of the intraocular fluids. Then he develops his own theory of glaucoma. According to Scalinci acute glaucoma is an acute insufficiency of the absorption of the intraocular fluids secreted in normal or abnormal quantity. The tissues, particularly the vessels, are no longer able to absorb this fluid sufficiently. In subacute glaucoma the vessels are at first still normal and succeed in freeing the eye from the excess of intraocular fluid so as to prevent the onset of secondary trophic changes. In chronic inflammatory glaucoma, on the contrary, the vessel walls are diseased from the first, and therefore it is frequently the case in this form that iridectomy produces little or no result. In glaucoma simplex, changes exist at first in the tissue of the eye which result in a reduction of the absorption of the intraocular fluid secreted in normal quantity. The

cause of acute inflammatory glaucoma is an increased transudation, that of glaucoma simplex a hypo-absorption. The curative effect of iridectomy is to be ascribed to the freer communication between the anterior chamber, the iris angle, and the suprachoroidal space as well as the episcleral lymph spaces. This communication is facilitated by a greater length, or a greater breadth of the filtration scar. Infantile glaucoma belongs to the group of glaucoma simplex. BERGER.

LAGRANGE (628, **The value of sclerectomy in the treatment of chronic glaucoma**) is convinced that sclerectomy rather than iridectomy reduces the intraocular tension. Thus in one case in which he had performed iridectomy the tension remained unchanged and did not become normal until after sclerectomy had been performed. Valude observed a case in a physician in which sclerectomy in one eye reduced the tension and improved the vision, while iridectomy in the other eye was without result. The latter eye regained normal tension and the vision was improved after sclerectomy. Lagrange has tried sclerectomy alone without iridectomy in five cases. In order to prevent prolapse of iris, the operation is preceded by three instillations of adrenalin, cocain, and eserin. Simple sclerectomy is indicated only in chronic glaucoma simplex (T + 1). In cases of glaucoma with greater tension it must always be combined with iridectomy. The results in the five cases reported were good. BERGER.

ABADIE (629, **Sclerectomy and iridectomy in glaucoma**) agrees with Otto Weiss that the filtration of the intraocular fluid through the tissue of the angle of the anterior chamber in the manner generally supposed does not exist. Consequently glaucoma can be produced not by retention, but only by a quantitative increase of the intraocular fluid in consequence of vaso-dilatation. Iridectomy acts only through section of the nerve plexus of the iris. The position of the incision has no influence on the efficiency of the iridectomy. He does not consider it proven that sclerectomy can cure glaucoma.

BERGER.

VALUDE (630, **Apropos of the irido-sclerectomy of Lagrange**) reports a case of chronic inflammatory glaucoma in which the tension became normal after an irido-sclerectomy, but the vision sank from $\frac{1}{2}$ to $\frac{1}{10}$ and finally to $\frac{1}{20}$. He cannot agree

with Lagrange that this operation should be performed in cases of glaucoma in which a comparatively good vision can be maintained by the use of myotics. BERGER.

BUSTORFF (631, **The results of treatment of simple glaucoma in the ophthalmological clinic at Helsingfors during the years 1877 to 1907**) reports eighteen cases of simple glaucoma observed two or more years, six treated wish eserin alone, the remaining twelve with iridectomy. He finds that a more rapid advance of the pathological process took place in the cases treated with eserin alone, while in many cases the iridectomy acted as a protection against a rapid advance of the process and in a portion of the cases had secured the patients tolerably good vision for several years. HELLGREN.

WERNICKE (632, **Experimental, clinical, and pathological communications concerning cyclodialysis**) reports the results of this operation after the lapse of two years. The operation was performed seventy-six times on sixty-one patients. In twenty-one the result was permanently good. In twenty-two the immediate result was good, but they were too short a time under observation. In nineteen the results were transiently good. In fourteen no effect was produced; this includes seven cases which were cured or improved by a second cyclodialysis. The technique and complications are briefly considered.

The work of WUECHODZEW (633, **Influence of Heine's cyclodialysis on the change of intraocular fluids in connection with the question of the importance of this operation in the treatment of glaucoma**) consists of five parts. The first part deals with the history of the operative treatment of glaucoma; the second, the methods of examination; the third, literary data and experimental studies of the anatomical and physiological relations of the anterior chamber to the perichoroidal space; the fourth, experimental study of cyclodialysis in rabbits and dogs; the fifth, the results and literature. He formulates his conclusions as follows: (1) In the normal eye there exists a constant but weak current of fluid from the anterior chamber into the perichoroidal space through the angle of the chamber. (2) It may be assumed that the passage of fluid from the anterior chamber into the perichoroidal space is by filtration between the fibres of the pectinate ligament. (3) From the

perichoroidal space part of the fluid passes through the perivascular spaces of the venæ vorticosæ, the rest into these veins. (4) This filtration of fluid under normal conditions of the eye from the anterior chamber into the perichoroidal space is not only not increased by cyclodialysis, but is lessened and in the part of the eye operated on is entirely destroyed. (5) Cyclodialysis is easily performed on dogs, but in rabbits the choroid is often torn into. (6) The danger of infection of the deeper parts of the eye is slight in this operation (7) Detachment and tears of Descemet's membrane and of the trabeculæ of Fontana's space by the introduction of the spatula through the angle of the chamber during the operation may cause a partial occlusion of the angle at this place. (8) Detachment of the ciliary body and of the choroid were observed only in the cases which were examined immediately after the operation, and then only when there had been a hemorrhage between these parts and the sclera. In other cases nothing of the sort was observed. HIRSCHMANN.

FRIDENBERG'S (634, **Innovations in the operative treatment of persistent glaucoma: A study of the substitutes for iridectomy**) is an exhaustive paper on this subject and does not lend itself easily to review. The various operations are described in detail and arguments in favor or against them are given. Special attention is paid to the cyclodialysis of Heine and the filtration scar of Lagrange. ALLING.

CHENEY (635, **Glaucoma following secondary (capsular) cataract operation**) considers the presence of vitreous in the anterior chamber as the cause of glaucoma after operation. He relates three cases which were controlled by myotics. In one the tension was not developed until a month after the discission and there was a second attack at the end of another month. He advises against too free opening into the vitreous and is doubtful of the necessity for iridectomy in treatment. ALLING.

MINOR (636, **Restoration of sight after nearly a month's blindness from glaucoma**) found the eyes with not even perception of light, tension plus one, anterior chamber shallow, pupil dilated, and media hazy. This condition had existed in both eyes for nearly a month. A week after iridectomy the vision with correction was $\frac{8}{10}$ and $\frac{20}{40}$. The disks then showed

cupping and atrophy and the fields were contracted to ten degrees from the fixation point. Later the left eye lost vision, but the right remained unchanged. ALLING.

XVIII.—SYMPATHETIC OPHTHALMIA.

637. THOMSON, E. S. **Report of two cases of sympathetic ophthalmia.** *Annals of Ophthalmology*, Oct., 1908. *Trans. Amer. Ophthalm. Soc.*, 1908.

638. HEERFORDT, C. F. **Some remarks concerning the nature of sympathetic uveitis, together with a peculiar case of this disease.** *Arch. f. Ophthalmologie*, xlix., iii., p. 559.

639. KALT. **A peculiar case of sympathetic ophthalmia after a broad wound of the eye.** XXV. *Jahresvers. der Franz. ophthalm. Gesellschaft*, v., 5, 1908.

640. SCHIECK. **Does exenteration of the eyeball furnish a sufficient protection against sympathetic ophthalmia?** 35 *Vers. der ophthalm. Gesellschaft in Heidelberg*, v., 8, 1908.

641. GIFFORD, H. **On sympathetic ophthalmia after evisceration and Mules's operation, with a case.** *Ophthalmic Record*, Nov., 1908.

642. CAMPBELL, D. M. **Post-operative sympathetic ophthalmia.** *Ophthalmic Record*, Nov., 1908.

643. WIDMARK, J. **The treatment of sympathetic ophthalmia with sodium salicylate.** *Hygiea*, 1908, p. 761.

The first case of THOMSON's (637, **Report of two cases of sympathetic ophthalmia**) lost his eye by necrosis of the cornea and Parinaud's conjunctivitis, the iris being included in the resulting scar. Three months later the other eye showed iritis with ciliary tenderness and a vision of $\frac{20}{200}$. Atropin, hot applications, and aspirin as high as 150 grains a day were ordered. The eye recovered with a few synechiæ and a vision of $\frac{20}{40}$. The second case had traumatic ulceration of the cornea, leaving a large cicatrix. Two months later he came with iritis in the other eye, but under the same treatment as in the preceding case finally got $\frac{20}{40}$. Thomson emphasizes the importance of non-irritative treatment and is inclined to attribute some of his success to the aspirin. ALLING.

HEERFORDT (638, **Some remarks concerning the nature of sympathetic uveitis, together with a peculiar case of this disease**) bases some remarks on the nature of sympathetic uveitis on a case of this disease following a blow on the eye. He directs attention to the eye first diseased, to the optic neuritis which first appeared there, and to the uveitis of the second eye, fifteen

days after the injury. The optic neuritis appeared in both eyes as the forerunner of the uveitis. In regard to the incubation of sympathetic ophthalmia he fixes its duration as about fourteen days. He considers that there is no doubt that the uvea possesses an electivity for the microbes or their toxins. The described case demonstrates the infection of the second eye to have been caused by transference in the circulation from the injury, so it should be considered rather as a specific, elective inflammation of the uvea than as a true case of sympathetic ophthalmia. The infection is carried in the blood or lymph and may follow the lymph tracts along the optic nerve.

KALT (639, **A peculiar case of sympathetic ophthalmia after a broad wound of the eye**) reports a case of broad laceration of the globe by a cow's horn. Four weeks later iritis appeared in the sound eye. Improvement did not follow enucleation but was finally obtained by means of injections of mercuric cyanide into the stump of the optic nerve.

SCHIECK (640, **Does exenteration of the eyeball furnish a sufficient protection against sympathetic ophthalmia?**) denies that exenteration suffices to prevent sympathetic ophthalmia, as it is possible to leave behind portions of the uvea which may serve as starting-points of the infection. He had such a case and found in the part of the uvea that had been left behind the typical picture of inflammation productive of sympathetic ophthalmia. In case a sympathetic inflammation supervenes, the enucleation of the stump is usually late, because it is to be supposed that the producing inflammation has been lingeringly present for a long time.

GIFFORD (641, **On sympathetic ophthalmia after evisceration and Mules's operation, with a case**) found, including his own, fourteen cases of sympathetic ophthalmia after this operation, nine after ordinary evisceration, and three after Frost's operation (implantation of glass ball in Tenon's capsule). He pertinently remarks that after having had a patient go blind with a somewhat unorthodox operation it is hard to escape some remorse at not having adhered more closely to conventional lines. It is not fair to our patients not to give them at least the chance of deciding whether they prefer to incur the slight risk of blindness for the slight improvement in looks.

ALLING.

CAMPBELL (642, **Post-operative sympathetic ophthalmia**) suggests the use of transillumination for the detection of the infiltration of the uveal tract which takes place in eyes involved in an inflammation such as precedes an outbreak of sympathetic ophthalmia. Skiagraphic technique may also offer some help along these lines. He also believes that the study of blood conditions of a patient with a suspicious eye may lead to further knowledge. He advocates the rule of one grain of salicylate of soda for each pound of weight of the patient per day. ALLING.

WIDMARK (643, **The treatment of sympathetic ophthalmia with sodium salicylate**) reports twelve cases of sympathetic ophthalmia treated with sodium salicylate; eight, 67%, with good results, one case with distinct clearing of the media, although the vision was bad because of cataracta accreta. Three cases were unaffected by the salicylate, but recovered under treatment with mercurial inunctions. HELLGREN.

Sections XIX–XXI. Reviewed by Dr. H. MEYER, BRANDENBURG.

XIX.—RETINA AND FUNCTIONAL DISTURBANCES.

644. STEPHENSON, SYDNEY. **A little-known type of amblyopia in children.** *Ophthalmoscope*, August, 1908.

645. NUEL, J. P. **Vesicular œdema of the macula lutea.** *Archives d'ophtalmologie*, xxviii., p. 737.

646. GINSBERG, S. **Retinitis pigmentosa.** *Klin. Monatsb. f. Augenh.*, xlvi., ii., p. 1.

647. BEST, F. **Retinal hemorrhages after removal of the thyroid gland.** *Zeitschrift f. Augenheilkunde*, xx., p. 548.

648. LAUBER, H. **Retinal detachment.** *Ibid.*, xx., pp. 118 and 208.

649. WIDMARK, J. **A case of bilateral, completely healed retinal detachment.** *Hygiea*, 1908, p. 681.

650. GALEZOWSKI, J. **Proliferating retinitis.** *Soc. d'ophtalmologie de Paris*, July 7, 1908.

651. FRIDENBERG, PERCY. **Tear in the retina. An unusual ophthalmoscopic picture.** *Ophthalmology*, July, 1908.

652. TYSON, H. H. **Cyanosis retinæ.** *Trans. Amer. Ophth. Soc.*, 1908.

653. FOX, L. WEBSTER, and BATROFF, W. C. **The relation between retinal hemorrhages and high arterial pressure.** *Ophthalmic Record*, Oct., 1908.

654. DE SCHWEINITZ, G. E., and HALLOWAY, T. D. **Sudden obstruction of the central artery of the retina; being a clinical record of five cases.** *Trans. Amer. Ophthalm. Soc.*, 1908.

655. SHOEMAKER, W. T. **Embolism of a macular artery and thrombosis of superior and inferior retinal arteries in a case of embolic softening of the brain.** *Trans. Amer. Ophthalm., Soc.*, 1908.

656. GALLEMAERTS. **Subretinal cysticerus.** *Bull. de l' Acad. Roy. de Medicine de Belgique*, Oct. 31, 1905.

STEPHENSON (644, **A little-known type of amblyopia in children**). Children are often brought to the hospital complaining of deficient vision. They are refracted under atropin, but good vision is not obtained with the correct glasses. Perhaps only $\frac{1}{7}$ or $\frac{1}{5}$ is the best acuteness. The optic disks are grayer than they should be. The condition is one of "post neuritic atrophy." It is often found that the child has suffered from convulsions or an attack of some cerebral disease, such as meningitis. On recovery sight was lost or impaired but gradually returned. These cases almost certainly had optic neuritis which left the partial atrophy discovered and its consequent poor vision. The condition must be distinguished from "Fleeting Amaurosis" and "Post-Eclampsic Amaurosis." The former is found in infants suffering from basal meningitis, and sight is wholly lost without ophthalmoscopic signs. Such children generally recover health and vision. The second class of amaurosis is caused by continued convulsions which leave the child blind without fundus changes. Aphasia and hemiplegia often accompany the amaurosis. In these two diseases there is no optic neuritis and no following optic atrophy. In the class of case under consideration optic atrophy is always found. Stephenson lays no claim to originality in describing this condition.

T. HARRISON BUTLER.

NUEL (645, **Vesicular œdema of the macula lutea**) describes five cases of vesicular œdema of the macula lutea, the clinical picture of which is shown in Haab's atlas. In one case, met with in an injured eye, he was able to determine that the changes which ophthalmoscopically resembled vesicles of the macula were produced by an œdema of Henle's layer of the macula. Arteriosclerosis was the basis of the disease in the five cases he observed clinically. The prognosis is not un-

favorable in so far as the disease never causes total blindness. In two cases he obtained an improvement of vision, but the condition never returns to the normal. For treatment he recommends the internal administration of potassic iodide, milk diet, and moderate deprivation of salt. BERGER.

GINSBERG (646, **Retinitis pigmentosa**) examined microscopically the eyes of a consumptive who had suffered from retinitis pigmentosa and found the choroid intact beneath the affected portions of the retina. He therefore concludes that, as no relations exist between retinal and choroidal changes in localization and intensity, a circulatory disturbance in the choroid cannot be the cause of the retinal disease.

BEST (647, **Retinal hemorrhages after removal of the thyroid gland**) gives the history of a case of retinal hemorrhages following extirpation of the thyroid gland which disappeared after administration of thyroid tablets. He recommends the use of thyroidin in retinal hemorrhages from arteriosclerosis, or from unknown cause, but warns at the same time against the dangers of a therapeutic thyroidism.

LAUBER (648, **Retinal detachment**) reports a series of cases of retinal detachment with complications. He takes the ground that a universal explanation of the origin of detachment cannot be found because it is only a symptom of a general disease of the eye. He divides detachment into the form met with in albuminuric retinitis, in which the exudation theory furnishes the best explanation; the rare hemorrhagic form through mechanical displacement; the form associated with tumors of the choroid, in which the cause is an exudation from the choroid; that consequent of perforating wounds, in which shrinkage of the vitreous is beyond doubt the etiological factor; that met with in retinitis proliferans, likewise due to shrinkage of the vitreous; that following traumatism, due to exudation from the choroid; and that met with in phthisis. In the case in which the vitreous is healthy there is usually a loosening of the connections between the neuro-epithelial and pigment epithelial layers. Frequently a disease of the ciliary body and a disease of the choroid, at first latent, precede the detachment. The questions what process is the basis of spontaneous detachment, in what part of the eye it begins, and how it acts, are left unanswered.

A woman 60 years old, WIDMARK (649, **A case of bilateral, completely healed retinal detachment**) tells us, had for a period of six weeks repeated attacks of general ill-health, fever, exophthalmos, and marked reduction of vision. When examined, the patient had exophthalmos, chemosis, and bilateral detachment of the retina below, together with a naso-pharyngeal catarrh. She had been treated two years before for empyema of the antrum of Highmore. Under treatment of the nasal trouble, the exophthalmos disappeared, the retina became re-attached, the vision improved, and the visual field became normal. He insists that this was a true case of detachment, not one of indentation of the capsule of the globe.

HELLGREN.

GALEZOWSKI (650, **Proliferating retinitis**) is of the opinion that two forms of proliferating retinitis should be distinguished clinically: (1) the chronic form, which includes the known cases up to the present time; (2) the acute form, which he has observed in one patient, ascribed to syphilis.

FRIDENBERG'S (651, **Tear in the retina**) patient had the sight of the left eye markedly affected two years previous, after severe exertion. Two weeks before observation it had failed almost completely. In the macular region, somewhat below the fovea, is a spindle-shaped bright-red area surrounded by a sharply-defined ragged edge. There is no sign of hemorrhage or pigment deposits. The entire retina is soggy and raised above the disk. There may have been a small local accumulation of fluid which finally ruptured. ALLING.

According to TYSON (652, **Cyanosis retinæ**) there are on record nineteen cases of this disease. His own case was a boy of twelve who had been healthy until two years of age, when, after a convulsion, he became cyanosed and has remained more or less so ever since. His physical condition is not good and his chief complaint is dyspnœa upon exertion. Examination of the heart gave evidence of a patent foramen ovale and pulmonary stenosis. The fundus is much darker than normal; the disk appears red, due to dilatation of capillaries, veins are blue-black, arteries are of the usual color of veins, both being dilated and tortuous. In this case there is a polycythemia of 8,000,000 reds, and on this account the prognosis is considered to be unfavorable. ALLING.

In the examination of one hundred cases of retinal hemorrhages, Fox and Batroff (653, **The relation between retinal hemorrhages and high arterial pressure**) found that 40% had occurred in cases of chronic interstitial nephritis, 27% in arteriosclerosis, 13% in chronic parenchymatous nephritis, 20% in various other conditions. All were examined within forty-eight hours after the onset of retinal apoplexy. In eighty the retinal hemorrhage occurred in patients suffering from permanent or temporary high arterial tension. The most efficacious treatment was venesection, which favors the absorption of the clot as well as reduces the blood pressure.

Alling.

de Schweinitz and Halloway (654, **Sudden obstruction of the central artery of the retina; being a clinical record of five cases**) in the extensive reports of their cases make special reference to: (*a*) a large central scotoma as an onset symptom, with smaller central scotomata as an end product. Such scotomata are probably due to obstruction of the macular arteries, although in some cases other causes were found. (*b*) Extensive vasculitis and perivasculitis as the ultimate outcome. (*c*) Long periods of prodromal disturbances which seem to be fairly common and significant. (*d*) The possible relation of spasm of the central vessels as the cause of these temporary obscurations as well as of the final attack. (*e*) The presence of a small area of functionating retina surrounding the optic-nerve entrance. The most plausible explanation of this condition is that the capillary anastomosis between the ciliary and retinal systems is capable of keeping up the nutrition in the immediate vicinity of the disk. (*f*) The therapeutic value of deep ocular massage which they believe worthy of trial, as well as the very evident indication for the use of nitrites.

Alling.

Shoemaker (655, **Embolism of a macular artery and thrombosis of superior and inferior retinal arteries in a case of embolic softening of the brain**) had the opportunity of examining this case ophthalmologically some days before death, also pathologically later. The medical diagnosis was uræmia, chronic parenchymatous nephritis, broncho-pneumonia, and left-sided cerebral softening with hemorrhage. The ophthalmic diagnosis was as above stated. There was found wide-

spread degeneration of those retinal layers dependent upon the retinal vascular supply for nutrition on account of partial thrombotic occlusion of the arteries; the more intense degeneration of the macular region as due to total obstruction of the macular artery by a mass of hyaline material, in the centre of which there was an ovoid, more highly refractile body which was probably an embolus. Œdema was also shown, which was due to alteration in the vessel walls, as were the hemorrhages. ALLING.

GALLEMAERTS (656, **Subretinal cysticercus**) operated successfully on a case of subretinal cysticercus cellulosæ in a butcher. He has met with a total of five cases of intraocular cysticercus, all in Belgians. This case is noteworthy on account of the demonstration of numerous eosinophile cells in the blood, which were scarce after the operation. Eosinophilia has been observed in ankylostoma and trichinosis and the demonstration of its presence may be of diagnostic importance as indicating the existence of a subretinal cysticercus in cases of retinal detachment of doubtful origin.

XX.—OPTIC NERVE.

657. THORNER, WALTER. **Studies concerning the origin of choked disk.** *Archiv f. Ophthalmologie*, lxix., 1, p. 1.

658. HORSLEY, SIR VICTOR. **The operative treatment of optic neuritis.** *Ophthalmoscope*, Sept., 1908.

659. v. HIPPEL. **The palliative trepanation in choked disk.** *Archiv f. Ophthalmologie*, lxix., p. 290.

660. VAN LINT. **Ocular changes twenty-two months after resection of the optic nerve for sarcoma.** *Société Belge d'ophtalm.*, Nov. 27, 1908.

661. STEVENS, E. W. **Indirect injuries of the optic nerve.** *Colorado Medicine*, July, 1908.

662. HOLDEN, W. A. **The optic-nerve changes in multiple sclerosis.** *Jour. Amer. Med. Assoc.*, July 11, 1908.

663. SCHNEIDEMAN, T. B. **Pseudo-optic neuritis.** *Ophthalmic Record*, Nov., 1908.

664. KIPP, C. J. and ALT, A. **Tear of the optic nerve by a bullet. Hole at the macula.** *Amer. Journ. of Ophth.*, Aug., 1908.

On the basis of physical studies, experiments on animals and a case of choked disk observed by himself, THORNER (657 **Studies concerning the origin of choked disk**) considers it improbable that increased intracranial pressure is transmit-

ted to the papilla, because of the capillary resistance of the intervaginal space of the optic-nerve sheath. Inversely, if that were true, an exophthalmos must cause intracranial pressure. The experiments of increasing the intracranial pressure and the local pressure by retrobulbar injections of indifferent substances failed to produce choked disk, but a marked œdema of the papilla followed the injection of different substances productive of inflammation. Clinical observations indicate also that a choked disk can be obtained through toxins alone without increased intracranial pressure. The toxins injure the cells of the Pacchionian bodies which secrete the fluid. For these reasons the author has decided in favor of Leber's toxin theory.

Horsley (658, **The operative treatment of optic neuritis**). Optic neuritis is produced by a combination of factors, of which the only one we know to be certainly present is a rise of intracranial pressure. This rise of pressure is the primary factor; toxæmia may be present, but the exact effect of toxins is not yet known. As regards operation for the relief of optic neuritis where the disease cannot be diagnosed and localized, Horsley believes that simple opening of the skull is insufficient; the dura mater must be opened freely, say for 5*cm.* He does not recommend withdrawing the cerebro-spinal fluid by a lumbar puncture. Any relief to the neuritis and headache is not permanent. Where shall we open the skull? There are two places where the arachnoid forms a cisterna which can readily be approached, and of these the more important is the intrapeduncular cisterna which lies just under the floor of the third ventricle. Horsley advocates the making of a large oval opening in the temporal bone (practically the removal of the squamous bone), free incision of the dura mater, and the pushing back and slightly raising the temporal lobe of the brain. This affords the most certain relief and is the operation of selection. There is another cisterna under the cerebellum. This can be approached by trephining the occipital bone and prolonging the aperture into the foramen magnum. On opening the dura it is readily seen that the arachnoid here is attached high up on the cerebellum, and the cisterna can be opened at once without difficulty. The eye which first loses its vision is *beyond doubt* upon the

same side as the lesion. In every case in which Horsley has operated upon recently the neuritis was more intense or older upon the side of the lesion. Horsley thinks that the surgeon is responsible for the blindness which results from optic neuritis if he leaves the case undecompressed.

T. HARRISON BUTLER.

v. HIPPEL (659, **The palliative trepanation in choked disk**) says that trepanation usually results in a retrogradation of the choked disk, but vision is to be maintained only when the operation is performed as early as possible, while life is lengthened. Trepanation should be performed rather than an osteo-plastic resection. The resulting herniæ of the brain are necessary. The place of selection for the operation is the region of the tumor, if it has been located, or in the right parietal region. The dangers attendant on the operation are pointed out. When the diagnosis of tumor is not certain, lumbar puncture should be performed.

VAN LINT (660, **Ocular changes twenty-two months after resection of the optic nerve for sarcoma**) resected the optic nerve of a patient 15 years old because of sarcoma. Twenty-two months later, examination of the eye showed contraction of the pupil; after this had been dilated with cocain and atropin, optic atrophy, pigment degeneration, and the formation of fibrillary cords in the retina were to be seen.

BERGER.

STEVENS (661, **Indirect injuries of the optic nerve**) presents two cases of severe blow on the head followed by atrophy of the optic nerve and blindness on one side. Of the possible injuries which might have taken place, he mentions fracture through the optic foramen, hemorrhage in the optic-nerve sheath, laceration of the nerve by bone spiculæ, and contusion of the optic nerve by contrecoup, the nerve being thus driven against the side of the optic foramen.

ALLING.

HOLDEN (662, **The optic-nerve changes in multiple sclerosis**), after a discussion of the pathology, cites cases illustrating changes in the field of vision, which are central scotoma, concentric contraction, or both. More than half of the patients with this disease who complain of failing vision have retrobulbar neuritis, and he believes that a non-toxic retrobulbar neuritis,

not due to a sinusitis (which is now recognized to be a common cause), nor directly to syphilis, diabetes, neoplasms, or trauma, will generally be caused by multiple sclerosis. Even though other symptoms are absent, this disease should be thought of.

ALLING.

The appearance of optic neuritis, even with some swelling of the disk, has been observed in eyes with normal vision and may persist for years without change. Usually there is some error of refraction. SCHNEIDEMAN (663, **Pseudo-optic neuritis**) saw two sisters who had nerves with obscured outlines, elevated about 2.5 D., slightly tortuous vessels, and perfect vision. He is inclined to regard these conditions as congenital.

ALLING.

The day before being seen by KIPP (664, **Tear of the optic nerve by a bullet; hole at the macula**), the patient had been injured by a bullet, which entered the cranial cavity in the roof of the orbit and lodged in the temporal lobe of the opposite side. He died of abscess about the bullet and purulent meningitis. Great œdema of the retina was found, with a red spot at the macula, about one-third the diameter of the disk. This proved on microscopical examination to be a hole with ragged edges. Macular holes, it has been supposed, are not due to rupture at the time of injury, but as this case was seen so shortly after the accident it would appear to have been produced at the time. This seems to be the first case in which a hole at the macula has been seen ophthalmoscopically and examined microscopically.

ALLING.

XXI.—INJURIES, FOREIGN BODIES, PARASITES.

665. COULLAUD. **Eight cases of electric ophthalmia.** *Archives d'ophtalmologie*, xix., p. 26.

666. MARX. **A case of blistering of the cornea.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 259.

667. SCHUMACHER, G. **Anaërobic bacilli in wounds of the eye.** *Klin. Monatsbl. f. Augenheilkunde*, xlvi., ii., p. 34.

668. SNYDER, W. H. **Breaking off of the point of the knife while performing iridectomy.** *Ophthalmic Record*, Oct., 1908.

669. FORSMARK, E. **Cases of double perforation of the eye by iron splinters.** *Meeting of the Swedish Ophthalmic Soc., Hygiea*, 1908, p. 883.

670. LYSTAD, H. **Cases of splinters of iron in the eye treated in**

the eye department of the Reichshospital between April, 1902, and April, 1907. *Norsk Magasin for Laegevid.*, p. 649.

COULLAUD (665, **Eight cases of electric ophthalmia**) found in the milder cases only photophobia and conjunctivitis with the feeling as of the presence of a foreign body, but in the severer cases there were also changes in the fundus, dilatation of the retinal veins, and passive congestion, lachrymation, and blepharospasm. The symptoms of electric ophthalmia appear from 7½ to 17 hours after the exposure to the electric light. The later they appear the milder are the symptoms.

MARX (666, **A case of blistering of the cornea**) observed a lead burn of the eye with the formation of a regular blister. The blister had a fibrinous exudate within the epithelium, cell degeneration on the roof of the blister, epithelial mitoses in its floor, epithelial bridges between the upper and lower walls, and broken-down remains of epithelium in its contents,—all common points which proved the nature of the process to be the same as that of a blister of the skin.

SCHUMACHER (667, **Anaërobic bacilli in wounds of the eye**) found in two cases of injury of the eye which he examined bacteriologically a bacillus which he identified with Fraenkel's bacillus phlegmones emphysematosæ.

SNYDER (668, **Breaking off of the point of the knife while performing iridectomy**), in making a corneal section, used a new medium-wide Graefe knife made by Weiss. In making the counterpuncture the knife broke off about *1mm* from the end. The section was finished with another knife, and the broken point was dislodged by a spatula and removed with the iris in making the iridectomy. ALLING.

Between the years 1889 and 1904, FORSMARK (669, **Cases of double perforation of the eye by iron splinters**) met with twenty-seven cases of double perforation of the eye among 325 cases of wound with pieces of iron. In four cases the double perforation was found after enucleation; in three the diagnosis was made from the objective symptoms, including the sideroscope; in two the diagnosis was uncertain. In the remaining eighteen the diagnosis was made with the X-ray, in eleven after fruitless attempts to extract by means of the hand magnet. A double perforation should be suspected: when an injured place can be seen in the fundus and the sidero-

scope indicates that the fragment is in that position, unless it is to be seen; when there is a subconjunctival hemorrhage in the fornix which cannot be referred to the wound of entrance; when the eyeball protrudes, and when the tension is minus, although there has been no loss of vitreous at the wound of entrance. In all such cases, when an attempt to extract the fragment with the giant magnet fails, an X-ray examination should be made before the hand magnet is introduced into the vitreous. The prognosis for double perforating wounds is worse than that for splinters of iron in the posterior part of the globe. HELLGREN.

LYSTAD (670, **Cases of splinters of iron in the eye treated in the eye department of the Reichshospital between April, 1902, and April, 1907**) reports 61 cases. The sideroscope was used in all cases, only once with a negative result. In this case the splinter was located with the X-ray. Primary enucleation was performed in 3 cases, secondary in 12. The giant magnet was used in 21, the hand magnet in 40. The foreign body was extracted in 93.5% of the cases. In two cases there was a double perforation of the eye diagnosed with the X-ray. He emphasizes the importance of an exact diagnosis by means of the sideroscope and the X-ray and warns against the routine use of the giant magnet and its use for diagnostic purposes.

Section XXII. Reviewed by Prof. HUMMELSHEIM, BONN.

XXII.—OCULAR DISTURBANCES IN GENERAL DISEASES.

671. PIGEON, H. W. **A case of aseptic cavernous-sinus thrombosis.** *British Medical Journal*, Dec. 12, 1908.

672. BLACK, MELVILLE. **Relations of ocular and cardio-vascular disease.** *Journal Amer. Med. Assoc.*, July 18, 1908.

673. DERBY, G. S. **The increasing importance of tuberculosis as a cause of ocular disease. The newer methods of diagnosis and the treatment.** *Trans. Amer. Ophthalm. Soc.*, 1908.

674. WOODS, HIRAM. **Ocular complications of pregnancy.** *Jour. Amer. Med. Assoc.*, July 18, 1908.

675. MCKEE, H. **The cultivation of the meningococcus from eye conditions complicating epidemic cerebro-spinal meningitis.** *Ophthalmic Record*, Sept., 1908.

676. HUBBELL, A. A. **Relation of so-called ophthalmic migraine to epilepsy.** *Jour. Amer. Med. Assoc.*, Aug. 8, 1908.

677. WESTE, PAUL. **Traumatic pupillary disturbances, especially**

unilateral absence of reflex to light of traumatic origin. *Inaug. Dissert.*, Leipsic, 1908.

678. JUNIUS, P., and ARNDT, M. **Contributions to the statistics, etiology, symptomatology, and pathology of progressive paralysis.** *Arch. f. Psychiatrie u. Nervenkranh.*, Bd. 44, 2, p. 493, 1908.

PIGEON (671, **A case of aseptic cavernous-sinus thrombosis**). A sailor fell and badly fractured his jaw. Six weeks after the fracture had been treated by wiring and splints, chemosis came on and the eyeballs protruded. Vision remained good. There was no pyrexia or cerebral disturbance. No change for better or worse occurred for four months. Then thyroid extract was administered in five-grain doses twice a day. In two weeks there was much less swelling. After eighteen months there was still some œdema, fulness of the conjunctival veins, slight exophthalmos, and diplopia caused by insufficiency of the internal recti. No mention is made of the appearance of the fundus. It was decided that the condition was due to aseptic thrombosis of the ophthalmic veins and of both cavernous sinuses. The suggested cause was: (1) Increased coagulability of the blood from excess of calcium salts taken during six weeks on a milk diet. (2) Interference with the circulation in the frontal veins and with the branch communicating with the ophthalmic veins by a band encircling the head, applied to keep the jaw bandage in place. T. HARRISON BUTLER.

BLACK (672, **Relations of ocular and cardio-vascular disease**) describes cases of retinal hemorrhages, optic neuritis, neuro-retinitis, asthenopia, episcleritis, and hemorrhagic glaucoma due to general venous stasis, dilated heart, auto-intoxication, polycythemia, etc., and discusses the diagnosis and treatment. ALLING.

DERBY (673, **The increasing importance of tuberculosis as a cause of ocular disease. The newer methods of diagnosis and the treatment**) reports on 103 cases of suspected ocular tuberculosis tested by the ophthalmo-tuberculin and cutaneous reactions. Eighty-three reacted positively, 18 were negative. Out of 61 conjunctival tests, 45 were positive. The cutaneous test was tried 58 times and was 52 times positive. Both tests were positive in 14 of 16 cases. Of 43 cases of phlyctenular disease, 38 reacted and Derby believes that this disease is certainly tuberculous. Sixteen cases of relapsing sclero-keratitis were

all positive. Two of three cases of interstitial keratitis reacted. Delayed reaction was observed four times and he thinks that this means an encapsulated focus. Several conjunctival reactions were severe, but none serious. He finds the cutaneous test more sensitive than the conjunctival, and free from danger. In 46 cases a physical examination was made and 32 were reported as suspicious or positively tuberculous in other parts of the body. The subcutaneous test should be discarded, as it aggravates the local lesion unnecessarily. Observation of 30 cases treated by tuberculin injections have not convinced him of their therapeutic value.

ALLING.

WOODS (674, **Ocular complications of pregnancy**) divides the cases into four groups: (1) So-called uræmic amaurosis or sudden and complete blindness without ophthalmoscopic lesion. This is confined to eclampsia, follows the convulsion, and is due to kidney derangement. The prognosis for life in these cases is better than in the ordinary uræmic blindness. (2) Albuminuric retinitis. Not necessarily due to profound kidney disturbance, but an expression of toxæmia. Two further uncommon groups are: (3) The loss of central vision or some portion of the visual field without retinal lesion. There seems to be a decided tendency to permanent involvement of the lower quadrant in some of these cases which is unexplained. (4) A form of neuro-retinitis not essentially suggestive of the albuminuric type, but showing numerous exudates and hemorrhages. ALLING.

MCKEE (675, **The cultivation of the meningococcus from eye conditions complicating epidemic cerebro-spinal meningitis**) states that during the past year there were seen at the Montreal General Hospital seven cases of this disease with ocular symptoms, one being metastatic ophthalmitis and six conjunctivitis. From the first the meningococcus was isolated, as well as from two cases of conjunctivitis. He also cultivated the meningococcus from a healthy conjunctiva. He points out the great care necessary in differentiating the three morphologically similar Gram-negative germs—gonococcus, meningococcus, and micrococcus catarrhalis, as only culture variations are reliable for diagnostic purposes. ALLING.

HUBBELL (676, **Relation of so-called ophthalmic migraine**

to epilepsy) feels strongly that these two conditions are in no way related, and states that out of probably fifteen hundred cases of migraine occurring in his practice not one had epilepsy nor had it existed in their families.

ALLING.

WESTE (677, **Traumatic pupillary disturbances, especially unilateral absence of reflex to light of traumatic origin**) saw a woman twenty-four years old, previously healthy, who had been struck with a stick fourteen days before on the lower margin of the right orbit and had suffered, as she said, a very marked disturbance of vision in the eye. The vision was demonstrably at least ½ of the normal; the accommodative power was demonstrable only objectively because of the pretended great weakness of vision, but was not lessened, while the visual fields of both eyes were alternately much contracted. The only objective symptom was great mydriasis of the circular pupil, which was totally immovable to light directly or consensually. Convergence reaction was normal; the lid reaction distinctly slow and absent to irritations of sensation. Cocain and homatropin increased the mydriasis. Syphilis was not demonstrable; the nervous system was intact, but at times traumatic hysteria was plainly present. The condition remained unchanged during four weeks' observation. The author assumes a very peripheral, extrabulbar site of the lesion and is of the opinion that the fact that unilateral rigidity of the pupil to light may be occasioned by a peripheral lesion of the pupillary tract compels the assumption of a separate course for the nervous tracts which transmit the reactions of light and convergence.

JUNIUS and ARNDT (678, **Contributions to the statistics, etiology, symptomatology, and pathology of progressive paralysis**) have collated the reports of 1036 cases of progressive paralysis on whom autopsies have been performed at the Dalldorf lunatic asylum during ten years. A difference in the pupils was noted in 70.2% (many were examined only once, in very few nothing was noted); more or less disturbance of the reflex of the pupil to light in 93.8%. Only 63 cases had normal light reaction; not all of these were watched till death and without doubt many of them died before disturbances of the light reflex appeared. The light reaction was totally lost in 65.8%,

reduced to the minimum or sluggish in 25.7%. One eye alone was affected in 23 cases; 2 with absolute unilateral rigidity. Permanent unilateral rigidity appears to be extremely rare. Complete pupillary rigidity was present in 9.7%, reduction of the reaction to convergence, with reduced, or absent, light reaction in 17.7%. Thus in 26.8% of the cases there was more or less disturbance of the reaction to convergence.

BOOK REVIEWS.

I.—**Cerebral Decompression in Choked Disk** (Ueber die Palliativtrepanation bei Stauungspapille). By Professor E. v. HIPPEL, Halle. 95 pages with 5 figures in text. Leipsic: W. Engelmann, 1909.

The article written by the author on this subject in *Graefe's Archives* last year received so much attention from oculists, neurologists, and surgeons, that the writer decided to republish it with the complete literature and an additional chapter on the technical side of the operation. von Hippel met with great difficulties in preparing his statistics as in most of the cases published by surgeons or neurologists no details are given about the condition of the disk, the vision, and the field before and after the operation. So he bases his conclusions only on 272 cases described to a great extent in a rather imperfect way. Nevertheless there can be concluded with absolute certainty that the choked disk disappears after the operation, and that, as a rule, the vision continues to be good if it was satisfactory before (better than $\frac{1}{10}$), but that it does not recover if it was much impaired before. Contraction of the field is also an unfavorable condition prognostically. The author suggests an operation in a very early stage, and recommends not to wait until the vision becomes lowered, but to operate even when it is quite normal, which is the advice of the most experienced surgeons like Horsley, Kocher, Cushing. The results are identical when the choked disk is due to a tumor of the brain, even somewhat better in the cases with much impaired vision.

Concerning lumbar puncture, there are no improvements of long duration related in the literature, when the presence of a brain tumor was proven with certainty by post-mortem

examination; the results in hydrocephalus were no better. In syphilis of the brain, however, in meningitis serosa, and after injury, lumbar puncture was able to preserve the vision for years.

There can be no doubt that in some cases even without any operation the choked disk recedes and vision remains good; but these cases are too infrequent to be taken into consideration. On the other hand, it is certain that the patient can become blind and preserve his general health for many years. It is impossible to make the diagnosis of a brain tumor with absolute certainty. The tumor can be mistaken for chronic hydrocephalus, meningitis serosa, pseudo-tumor (Nonne), or acute and chronic swelling of the brain (Reichardt). Patients with cerebral tumor live long enough to enjoy their vision and in a condition much more favorable than before operation, as all symptoms of increased pressure (headache, vomiting, nausea) as a rule disappear. The danger of trephining in this early stage is far from being as great as estimated for all cases by Bergmann, who found 47 per cent. mortality.

In the cases of choked disk due to nephritis, trephining has also a favorable influence.

Of the greatest importance for the prognosis is the technique. The author advises that the operation be performed in two stages, being convinced that the dangers of sudden death or of severe brain symptoms are much lowered by dividing the shock for the brain into two intervals. At the first operation, only a piece of the bone should be removed, and a few days later the dura incised, and careful suture of the skin to be done immediately after the second operation, to prevent secondary infection. Incision of the dura is necessary, as in the majority of cases simple removal of a piece of bone is not sufficient for the beneficial effect of decompression.

If the tumor can be localized the trephining should be done in its neighborhood; if this is impossible the temporal region of the right side gives the best chances. The skull should be opened by an electric saw and not with hammer and chisel. It is unreasonable to prevent prolapse of the brain tissue, as it is necessary for its decompression.

The choked disk, as a rule, begins to recede only after two or three days, and does not completely disappear until some

weeks have elapsed. Some exceptional cases are described where the prominence of the disk has been found diminished immediately after operation.

Concerning the nature of the swollen disk the author is of the opinion that it is mere œdema and that inflammatory changes occur but secondarily and then are due to the retention of excretory substances. O. SCHIRMER.

II.—**Physiologie Oculaire** (Ocular Physiology, Human and Comparative). By Dr. W. NICATI, Marseilles. Paris: Librairie C. Reinwald, Schleicher Frères, 1909.

In an extremely well-arranged volume of nearly seven hundred pages the author has covered his subject in so comprehensive a manner that no detail is left undescribed.

An earnest student, taking nothing for granted, he describes accepted facts adequately, but without waste of words, and writes at length on subjects which are given but little space in works of this character.

The bibliography is adequate; and an index arranged by chapters, with many marginal notes throughout the book, makes the finding of any subject a matter of great simplicity.

The work is evenly divided into two parts. The first, on optics, beginning with a long chapter on phosphorescence in the lower animals, treats of refraction, the perception of light and colors, and the functions of the retina.

He deals at considerable length with his studies in color perception, the results of which he published some years ago in association with J. Macé de Lepinay.

The second part treats of the ocular mechanism, in which he includes every function not directly concerned in the perception of light; not only the movements of the globe, the pupil, and the lens in accommodation, but also the circulation of blood and lymph, and the nutrition of the eye.

His theory of the function of the choroid is of interest. He considers it to be a contractile muscular membrane of intraocular innervation, antagonistic in its action to the blood pressure. Its action is a reflex one, excited by the irritation of the inner vascular layer—a tactile impression caused by variations in the blood pressure.

Believing that these contractions of the choroid are essential

to the maintenance of normal ocular tension, he recognizes two varieties of glaucoma, obstructive and paralytic, the latter including the hemorrhagic and the simple varieties. He explains the irregular contractions of the visual field by paralyses of one or more sectors of the choroidal tissue. He believes this theory proves the value of the operation of sympathectomy in simple glaucoma, and the disappointing results of iridectomy.

The book contains scattered through it numerous facts and deductions of real value. While the author is rather given to coining new words when euphony, or the better expressing of an idea seems to require it, his style is good, and the book very readable. Throughout there is the dominant note of the man's own personality that makes the work a valuable addition to the library of an ophthalmologist.

J. B. LYNCH.

III.—**Beiträge zur Trachom Forschung** (Trachoma Investigations). By Drs. R. BUCHWALD, W. CLAUSEN, R. GREEFF, M. HARTMANN, A. LEBER, CESARE DI SANTO. Reprint of the *Klinisches Jaarbuch*, vol. xxi. Jena: G. Fischer, 1909. Mk. 5.40.

This small volume devoted to the study of trachoma contains six papers, of which the first, "On the Transmission of Trachoma," is by Greeff. This question remained unsolved until quite recently, because the infectious agent of the disease was unknown and because it had been impossible to transmit the disease to animals. The trachoma bodies are uniform round bodies, smaller than cocci. They are often surrounded by a pale area and occur in the follicles, epithelial cells, and conjunctival discharge. These bodies have only been found in trachoma. Attempts to inoculate the higher apes with trachoma have been successful. Human transmission was practised successfully in two cases (with the consent of the patients). One of these proved the existence of acute trachoma.

Drs. A. Leber and M. Hartmann contribute a chapter on "Etiology of Trachoma." These investigations were conducted in Triest with the assistance of Hartmann, who is an experienced protozoölogist. The best pictures were furnished

by the earliest cases with moderate follicles in the upper fornix. The specimens were fixed in bichlorid-alcohol or Hermann's solution, and stained with Heidenhain's iron hematoxylin. The occurrence of the bodies in the epithelial cells was confirmed. The plastin-like masses were found adjacent to the nucleus, and were regarded as reaction products of the cell, derived from the nucleus. These authors incline to the view that these granula are protozoa.

Dr. Cesare di Santo studied at Greeff's suggestion other conjunctival cases to determine the occurrence of these "trachoma bodies." Notwithstanding painstaking examinations these bodies were never found. Successful inoculations of monkeys and the examinations of tissue sections are described. "Are these trachoma bodies of value for differential diagnosis?" Dr. W. Clausen is firmly convinced that these bodies are specific for trachoma and of differential diagnostic value. Professor Greeff contributes a chapter on the "Introduction of Trachoma into the County Arnsberg," and Dr. R. Buchwald describes the "Distribution of Trachoma in the Province Posen."

These papers represent a great deal of diligent research on the present phase of the trachoma problem. A number of excellent colored plates illustrate the trachoma bodies.

A. K.

IV.—**Atlas of External Diseases of the Eye** for Physicians and Students, by Professor R. GREEFF of Berlin. Translated by Dr. P. W. SHEDD, New York. With 84 illustrations in colors on wax models. New York: Rebman Company, 1123 Broadway, 1909.

Professor Greeff in the preface states that it was his endeavor to perpetuate in wax models the appearance of important external diseases of the eye. These wax models are the work of an eminent sculptor, F. Kolbow by name. Artificial eyes are inserted in the models and show the pathological changes. The models were photographed in four colors. The results obtained are truly wonderful and reflect not only great credit on the artist-sculptor but are shining examples of the perfection which the technical art of reproduction has attained. The most successful illustrations are those of cutaneous lesions of the eyelids where the skin of the face was

also involved. Each illustration is accompanied by a description of the disease and its treatment. The task of the translator has been well done. Greeff's Atlas is especially adapted for teaching purposes, and is a fitting companion to the well-known books of Haab and Ramsay. A. K.

V.—**Diseases of Children.** Edited by A. JACOBI. An authorized translation from *Die Deutsche Klinik* under the general editorial supervision of Dr. JULIUS L. SALINGER, with 34 illustrations in the text. New York and London: D. Appleton & Company, 1910.

This work consists of a series of monographs arranged so as to form a systematic treatise. The authors are well known pediatrists in Germany and Austria. In "Diseases of the Newborn in the First Days of Life," by C. Keller, Berlin, there is a short description of gonorrhœal conjunctivitis. Other chapters which treat of conditions important from an ophthalmological standpoint are "Infantile Scrofulosis and Tuberculosis," by O. Soltmann, Leipzig, "Hereditary Syphilis," by H. Finckelstein, Berlin, "Functional Nervous Diseases of Infancy," by H. Neumann, Berlin, "Meningitis of Infancy and Hydrocephalus," by O. Kohts, Strassburg, "Measles and Scarlet Fever," by O. Heubner, Berlin, "Diphtheria and Diphtheritic Croup," by A. Baginsky, Berlin.

The opportunity to read these excellent essays in English is fortunate and will undoubtedly be welcomed by many aside from those practising in children's diseases. A. K.

VI.—**Lexicon Medicum.** Medical Dictionary in eight languages, by Dr. J. MEYER, Berlin, pages 799. Published by Urban & Schwarzenberg, Berlin-Wien, 1909.

This book aims to solve the difficulties in the use of foreign languages when visiting foreign countries or in conversation with foreign patients, so that a medical man speaking any one of the eight languages may converse in any of the other seven. The eight languages are German, French, English, Italian, Japanese, Russian, Spanish, and Hungarian. This huge undertaking has apparently been brought to a very successful conclusion. The omission of certain terms is bound to occur and can readily be remedied in subsequent editions. A. K.

VII.—**A Practical Treatise on Ophthalmology.** By L. Webster Fox, M.D., LL.D., Professor of Ophthalmology in the Medico-Chirurgical College; Ophthalmic Surgeon in the Medico-Chirurgical Hospital, Philadelphia, Pa.; Member of the Army Reserve Medical Corps, etc. Cloth, 807 pages, with 6 colored plates and 300 illustrations in the text. New York and London: D. Appleton & Co., 1910. Price $6.00.

This treatise is worthy of its title. It is a comprehensive study of ophthalmology for the student body "per se." The study of the different parts of the eye we would prefer if taken in the following order, *i.e.*, anatomy, physiology, diseases, etc., and the anomalous conditions referred to at the end of the chapter in the order of their relative importance. The writer has gathered together under the different chapters the various operations that have been suggested from time to time in ophthalmic surgery. The different operations designed for the relief of the condition have been clearly and fairly set forth, and nowhere is it taken for granted that the student knows the details and seemingly unimportant steps of the operation. So many authors fail in just this very point. The handling of the instruments is well shown by special photographic plates, more especially in the cataract operations. We would call attention to what is no doubt a typographical error on pages 430–431 describing the position of the "surgeon in operating." In regard to the "Smith method" for cataract extraction Dr. Fox says: "Every operator should approach the Smith operation for the extraction of cataract with a keen realization of its difficulties and obstacles. To be of benefit to the operator, the assistant must possess great delicacy of touch, steadiness of hand, and muscular control. Yet with all these qualifications, after repeated trials the author has decided that the assistant not only can be dispensed with, but that in doing so the operation is simplified, and the results are improved. The essential requirement of the assistant—to properly keep the eyelids out of the way—is admirably fulfilled by the Ziegler ophthalmostat, an instrument which not only keeps the lids apart, but lifts them away from the eyeball in the proper direction. In all other respects the author performs the operation as laid down by Major Smith." The chapters on "Color-perception and Color-blindness," and "Ocular

Manifestation of General Disease," are worthy of mention. We think that the method for locating foreign bodies in the eye suggested by the author is confusing and might at times be misleading. It does not seem to possess the merits of the other well-known methods. The book is printed in good, clear type on excellent paper and is well bound. It will prove a valuable addition in many respects to the medical literature of the day.

W. B. WEIDLER.